DOCUMENT RESUME

ED 222 177 IR 010 410

AUTHOR	Townsend, Ian; Parker, John
TITLE	A Guide to Producing Tape-Slide Packages. Workbook Sheets. Ancillary Reading.
INSTITUTION	NHS Learning Resources Unit, Sheffield (England).
PUB DATE	80
NOTE	136p.
AVAILABLE FROM	NHS Learning Resources Unit, 55 Broomgrove Rd., Sheffield, England S10 2NA (5 British pounds plus postage).
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Audiotape Recordings; Copyrights; Educational Objectives; Instructional Design; *Instructional Development; *Instructional Materials; Photographic Equipment; Photography; *Production Techniques; Readability; Scripts; *Slides; Storage; Student Participation
IDENTIFIERS	Storyboards; Typeface

ABSTRACT

Prepared for use by teachers interested in producing their own audiovisual aids, this guide outlines a step-by-step approach to the design and development of instructional slide-tape packages. It is divided into nine sections, each of which describes a set of activities forming a unique part of the audiovisual production sequence: (1) preliminary analysis and topic selection, (2) developing a "concept map" and an evaluation strategy, (3) scriptwriting, (4) preparing a storyboard for the visual component of the package, (5) preparing visual materials, (6) photographic tips and hints, (7) script recording, (8) assembling the entire package, and (9) using the finished package. A source list and a 50-item bibliography accompany the guide, as well as a set of worksheet master copies, which can be duplicated to produce worksheets for use in various development activities, and a set of ancillary readings on such topics as the importance of initial analysis in slide-tape production, readability in audiovisual scripting and presentation, the law of copyright, and media storage. (JL)

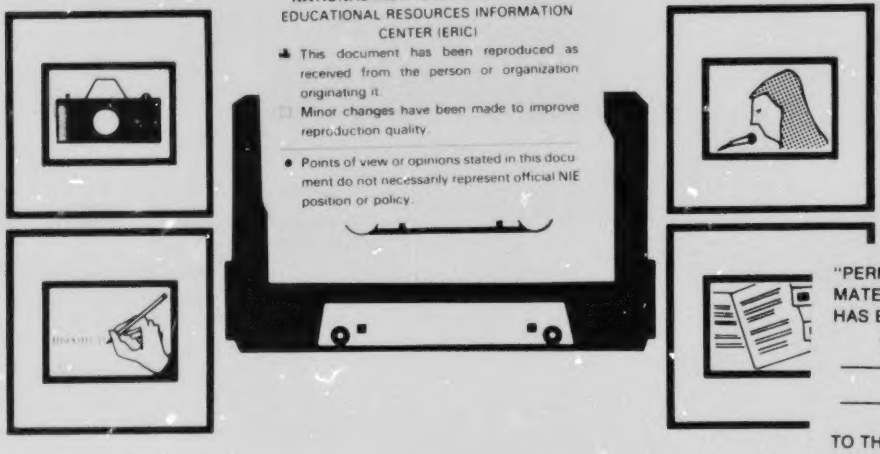
****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED222177

A Guide To Producing Tape - Slide Packages

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- ☐ Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.



"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Ian Townsend
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR010410

Ian Townsend and John Parker

CONTENTS:

About the Package
Activities
Validation II
Contents
Format _
General Aims III
About the Authors IV
Structure V
Why Tape-Slide ? VII
Pre-Requisite Skills
Copyright Acknowledgement IX
Budgeting - Time and Finance
Booklet Style X

SECTION 1: Introduction & Analysis.

Introduction 2
● *Being Objective* 3
● *Arranging Your Materials in Order* 6
Evaluation Stage 1 6

SECTION 2: Making A Start.

Limitations of this Package 10
Where Evlauation Comes in 11
● *Concept Map: Evaluation Stages* 14
The Different Types of Packages 15
The Four Key Areas 16

SECTION 3: Scriptwriting.

From Subject to Script 22
● *Starting* 23
● *Step 1* 24
● *Step 2* 25
Danger Points 26
Activities to Improve Scriptwriting 27
● *Step 3* 29
Evaluation Stage 2 30
A Word on Testing 33
Safe Storage - 1 34

SECTION 4: The Visual Element.

The Visual Element 36
Visual Awareness 38
● *1. Layout* 39
● *2. Colour* 41
● *3. Artwork*
● *4. Typeface* 43
● *5. Photographic Style* 44
● *6. Channel Information* 45
Other Visual Considerations 47
Style 49
● *Real-life Slides*
● *Artwork Slides* 51
● *Colour and Legibility* 52
Preparing to Storyboard 54
Tell me What I do, Again: 58
● *Step 1: Classifying the Slides* 59
● *Step 2: Firming up the Sketches* 61
Evaluation Stage 3 62
● *Step 3: Elaborating on Your Slides* 63
Lettering 64
Seven Lettering Decisions 67
Four Photographic Guidelines 72
Numbering the Slides 75
Evaluation Stage 4 76

SECTION 5: Visuals Preparation.

Who is Going to Produce Your Tape-Slide 80
Preparing the Artwork 82
Hints and Tips 84
Laying Down Lettering 86
Safe Storage - 2 92
Preparing to Photograph 93
Evaluation Stage 5 95

SECTION 6:
Photographic Hints & Tips.

What Do You Need? 98
Choosing A Camera 98
- *How Much?* 99

Lighting
Stocking up With Film 100
- *Film Types* 101

Choosing a Film 103
What Do You Do? 105
Copyright 107
When You are Actually Photographing
Mounting 108
Evaluation Stage 6 110
Safe Storage 3 110

SECTION 7:
Recording The Script.

What You Need
Making the Master 112
- *Script Preparation* 114
- *Physical Preparation* 115

Setting Down to Make the Tape 117
- *Setting Thing Up* 118
- *Student Response* 119
- *Slide Changes*
- *Music* 120

Alternatives 121
Evaluation Stage 7 122

SECTION 8:
Putting It Together.

Synchronization Systems or Mechanical Means? 125
Evaluation Stage 8 128

SECTION 9:
The Package in Use.

Integration 130
Methods of Use
Evaluation Stage 9 131
Budgeting - Time and Finance 132
Review 133

SECTION 10:
Source List, Bibliography.

Source List 136
Bibliography 137
Books on Writing Objectives 143
Late Ideas 144

About This Package

This Resources support package is the second in the NHS Learning Resource Units series of ISAVE *(In-Service Audio Visual Education)* packages.

It is written for any person in the Health Service who wishes to consider using the medium of tape-slide to aid the communication process. It is important to stress that this is a GUIDE: while it aims to provide comprehensive and practical information, it does not set out to turn you into expert tape-slide producers overnight. It presents basic insights and tips which the two authors have learnt through experience over nearly 20 years of practice.

Activities

You will be asked to carry out certain activities throughout this Guide. It will certainly help you to understand the Guide more readily if you are actually planning to produce a tape-slide unit concurrently with working through it. Instructions asking you to carry out a task are *typed in this face.*

Validation

The pack has undergone trials at a number of Schools of Nursing and has undergone revision as appropriate. It has also taken account of the comments of leading educational technologists in this country who have seen it.

Contents

This 144 pp. booklet, the A4 workbook (which you may make copies of, for developing other tape/slides on), a storyboard form, and copies of ancillary papers.

Format

To keep cost reasonable, the package is paper-based as far as possible.

General Aims

We hope that the information contained in this package will help you to structure and re-write (if necessary) pre-specified objectives so that you can then use these to form the base from which a suitable storyboard and script can be developed.

You should then be able to appreciate/select visual elements appropriate to your needs and be able either to brief a technician or photographer to prepare such visuals, or prepare them yourself.

You will be aware of how best to prepare your audio-commentary, and match this to your slide-set.

Finally you will be able to plan and carry-out the on-going process of evaluation and use the resulting package to its best advantage.

About the Authors

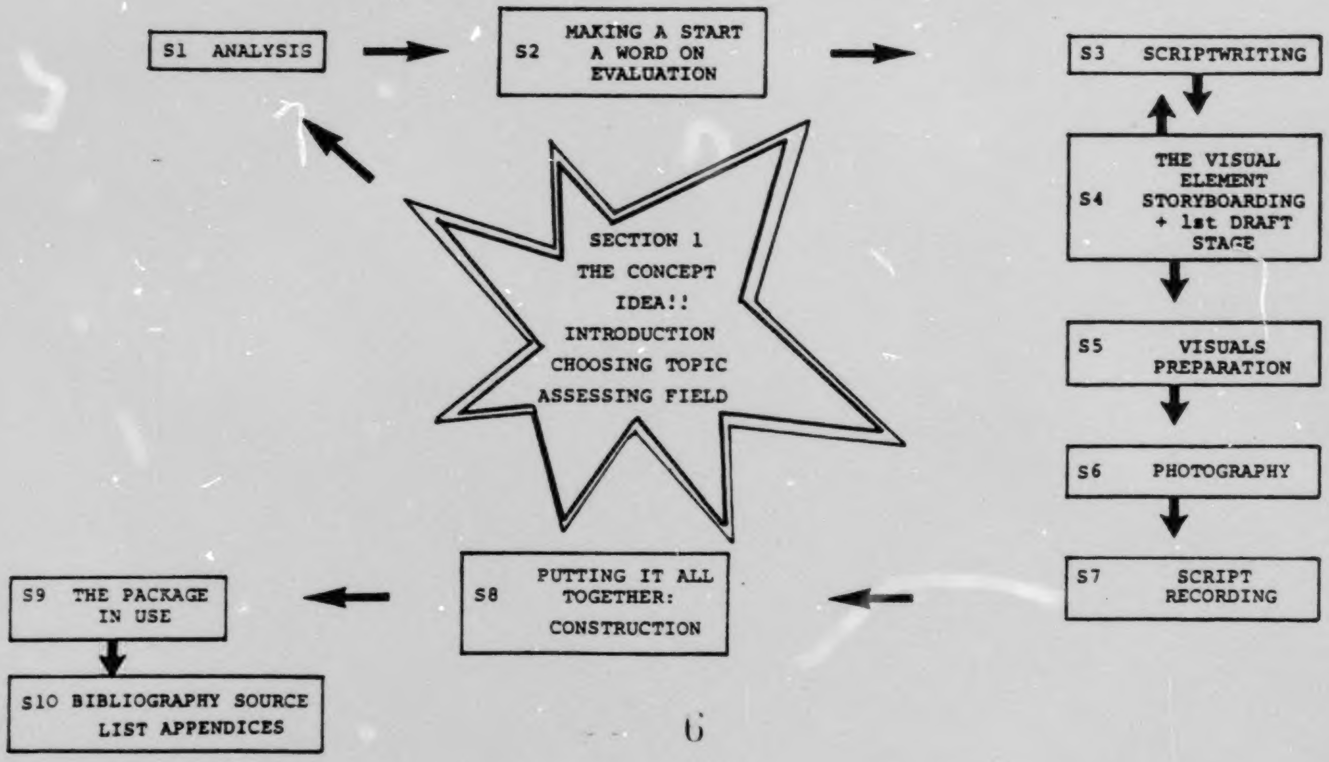
Ian Townsend trained as a secondary teacher, and has used media extensively over the past decade. He also holds the National Committee for Audio Visual Aids in Education's "Diploma in Educational Technology", and a Master of Arts in Applied Educational Studies from the University of York. He has carried out research into the preparation and use of tape-slide, and is the author of many packages. He currently works as media adviser in the National Health Service Learning Resources Unit.

John Parker trained as an audio-visual designer at Plymouth College of Art and Design and has considerable experience with tape-slides in a variety of fields. He holds Diplomas in Art and Design, and Educational Technology, and has worked in education, industry, the museum field and commerce as well as producing tape-slides as a freelance. He is currently the Principal Media Coordinator for Kingston Polytechnic.

Structure

The booklet is split into a number of sections which are closely interrelated. They are listed here and expanded graphically opposite.

- SECTION 1 "Introduction and Analysis
- SECTION 2 "Making a start, A Word on Evaluation - The Concept"
- SECTION 3 "Scriptwriting"
- SECTION 4 "Storyboarding: 1st Draft Stage".
- SECTION 5 "Visuals Preparation"
- SECTION 6 "Photography, Hints and Tips"
- SECTION 7 "Script Recording"
- SECTION 8 "Putting it together - Construction"
- SECTION 9 "The Package in Use"
- SECTION 10 "Bibliography, Source Lists, Ancillary Papers".


S1 ANALYSIS
S2 MAKING A START A WORD ON EVALUATION
S3 SCRIPTWRITING
S4 THE VISUAL ELEMENT STORYBOARDING + 1st DRAFT STAGE
S5 VISUALS PREPARATION
S6 PHOTOGRAPHY
S7 SCRIPT RECORDING
S8 PUTTING IT ALL TOGETHER: CONSTRUCTION
S9 THE PACKAGE IN USE
S10 BIBLIOGRAPHY SOURCE LIST APPENDICES
SECTION 1
THE CONCEPT
IDEA!!
INTRODUCTION
CHOOSING TOPIC
ASSESSING FIELD

Why Tape-Slide?

? Do you want to bring variety to a course ?

Do you want your students to study your materials both during class time and in their own time ?

? Do you want to bring together audio- and visual- ?

? Do you need to present facts and explanations to learners visually ?

Then *at least* consider the tape-slide package.

If you cannot answer YES to any of the above questions then you ought to be looking at some *other* way of presenting you material.

Tape-slide packages can be used basically in two different ways: as "presentations" giving facts to learners who remain relatively passive, whilst sitting, looking and listening, or as teaching packages which provide opportunities for them to be actively involved in their own learning.

People decide to use tape-slide packages for many reasons. Perhaps they are aware of concentrating too much on one particular teaching technique, and want to introduce variety into their teaching. Or perhaps they want to give their students a chance to work on their own giving them a little more support and guidance than a mere "Go to the library and read pps 567-582 in Jeffcoate". Sometimes they realise that the audio-visual impact afforded by this approach can benefit the teaching of an otherwise difficult concept. And sometimes they wish to experiment with a novel way of teaching.

Whatever the reason, many people have found the commercially available packages "not quite right" - and have wished they could "have a go". This Guide should help them on their way.

Pre-Requisite Skills

To reduce the amount of information in it, this Guide assumes you to possess certain entry skills.

These are the skills of being able to:

1. Write objectives for your package,
2. Handle a camera and take simple photographs

Reference will be made to other publications in these areas: the Guide will NOT teach you how to write objectives, nor will it teach you basic photography or basic graphic design.

Copyright Acknowledgement

We are grateful to the following for permission to include copyrighted papers in this Guide

J. Educational Broadcasting:	*"Media Storage" by Susie Rodwell.*
	'Make it Readable', from "Basically Branching" by Derek Rowntree.
Nursing Times:	*"The Law of Copyright" by Geoff Crabb.*
	"Choosing & Using Tape-Slide Packages" by Ian Townsend.
Visual Education:	*"Producing A Tape-Slide Package 1: The Initial Analysis" by Ian Townsend.*

BUDGETING - Time and Finance

How long, and how much, should you spend on producing a tape-slide package? As a rough estimate, 4-6 months is the minimum amount of time we find we need. P.132 gives fuller details.of time and finance.

BOOKLET STYLE

To help you appreciate the impact of writing and speech styles, various sections of this Guide are written in differing styles. Take time, as you go through, to ask yourself the questions - *"What do I think of this particular style ?" - "What impact or effect is it having on me ?"*

S1

Introduction & Analysis pps 2 - 9

Introduction

The first step in producing a tape-slide package is to have an idea "Oh yes, I'd like to teach that subject by tape-slide". Virtually every subject is amenable to being taught by this medium and later on (in Section 2) we'll have a closer look at what this means.

ACTIVITY 1

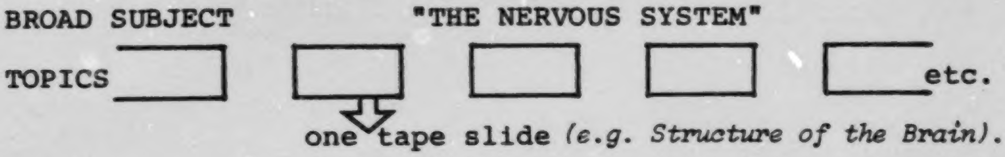
For the moment, choose a topic which you would like to use as a base for developing through this package. Write its title down on your copy of Page 1 of the workbook.

Once you've decided on a topic to develop, it's always a good idea to check that there isn't a suitable media package already around - so check out your own library, School Resource Collection, Resource Centre, or AV catalogues - or use the Media Information Service provided by this Unit.

Even if your search shows you that the available packages are not really suitable, you can often pick up useful ideas from other peoples effort and adapt them to your own ends.

It is a good idea to limit yourself if you are not experienced in tape-sliding.

A mistake probably all tape-sliders have made is initially to choose a topic which is too broad "The Nervous System" is a little bit too ambitious for your first attempt!
What you could do is to break down a broad subject into topics, and take one to develop into a tape-slide.



Keep the topic you choose deliberately short - something you can cover adequately in 20-30 minutes.

Now think of a title for your project. It should be concise, unambiguous, and tell the potential user what the tape-slide is about.

Being Objective

The value of specifying objectives before tape-sliding is often questioned. We think it is a great waste of time and effort NOT to try and specify the objectives for your package. They enable you to structure and sequence the content, and even to question your decision to use tape-slide, and they form the basic skeleton on which to hang the flesh of audio-visual instruction.

A tape-slide unit not based on carefully pre-specified objectives is an inadequate substitute for good teaching.

Now this package assumes you are already skilled at expressing your teaching intentions as objectives. To jog your memory *Ancillary Paper No.1: "Producing a Tape-Slide Package, Part 1"* does provide some information, and the Bibliography details some useful, easy to-read books.

It is worth stressing yet again at this point that although tape-slide packages can be used to teach most subjects, they are not always necessarilly the most appropriate way.

ACTIVITY 2

Read through the Ancillary Paper . Don't worry overmuch about what you might think of as "jargon" terms. Use the information to help you write down, first, your BROAD AIMS, and secondly your more specific objectives.

To help you do this, use the section, "first-draft objectives" in the Workbook supplied with this package.

You should aim at covering a manageable number of objectives in the time you have at your disposal (20-25 minutes); so keep them to a minimum. Of course, it depends on your subject matter but you'll probably find around a dozen objectives give you sufficient material.

NOTE:

On some of the following pages you will see E

This is to alert you to the fact that that page carries some instructions to you to carry out an evaluation task on your package.

E

Arranging Your Materials In Order

Now that you have managed to write down your broad aims for the package, and then your more specific objectives, you are ready for the next stage: Evaluating and ordering the objectives.

EVALUATION STAGE 1

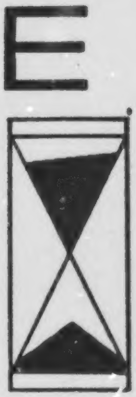
Are your objectives (as you have set them down) in a logical order? If they are not, they need to be rewritten/or resequenced so that they proceed logically. And of course, it's wise to start the ongoing evaluation even (or especially) at this early stage.

How acceptable are your objectives -
- to you
- to your colleagues
- to your students

in terms of -
- content,
- accuracy

and
- comprehension,
- order

It also helps to rank your objectives in order of their importance to the understanding of the subject matter.



A small amount of time spent at this stage often saves a much greater amount later!

ACTIVITY 3

Use the layout of Page 3 of the Workbook to record the observations you gather. Yes, we'd like you to actually ask yourself, a colleague and a student (perhaps one who has already covered your topic) those questions.

S2

Making A Start pps 10 - 12

A Word on Evaluation pps 13 - 14

Types of Packages pps 15 - 20

Making a Start

As we will see, the best way of starting is to have an idea: "That would be a good subject to teach with a tape-slide unit". But before we get down to the basic procedures, let us take a moments pause, and consider 3 major points.

POINT 1: Limitations of THIS Package

a. MEDIUM.

Tape-slides are based on the marriage of two different formats - vision and sound - which most of us are extremely talented in using although we may not realise it. (You don't agree? Come on - haven't you been using your eyes and ears all your life?). But since this package is largely paper-based, we have decided to treat the development of each format separately. Its easier to write about that way.

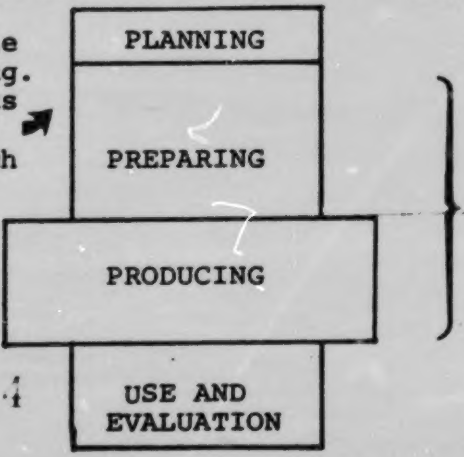
IN PRACTICE YOU WILL SOON LEARN TO DEVELOP THE VISUAL AND SOUND ELEMENTS TOGETHER: THERE IS A DYNAMIC BETWEEN THE TWO.

So although we will write about developing a script first, please do remember that for some people, the visual ideas come first, and for others, script and picture emerge simultaneously. It really does all depend on YOUR best way of working. Some people are natural visualisers and can imagine the flow of pictures which will go to make up their tape-slide. Others are natural verbalizers and will be better at writing the sound script.

b. EMPHASIS

A second limitation of this package lies in its emphasis on the theoretical and practical implications of tape-slide production. Because it is a broad guide, it cannot take you individually through each step, and because of our decision to limit it, it might give you a false picture of the relative importance of the stages. Lets do something about that right now.

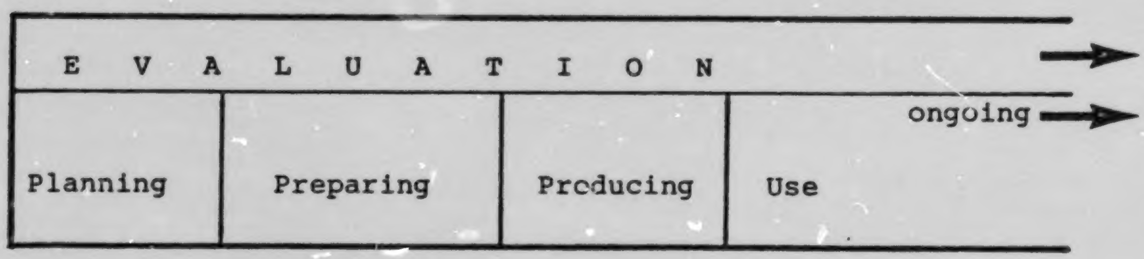
Heres how many people think of tape-sliding. Each block represents the relative amount of time spent at each stage.



Most of the effort is put into physically preparing and producing the package.

Now, how do we see the process?

We see the process like this, with time and effort going into the planning stage, with open-ended use, and continuous, on-going evaluation.



POINT 2· Where Evaluation Comes In

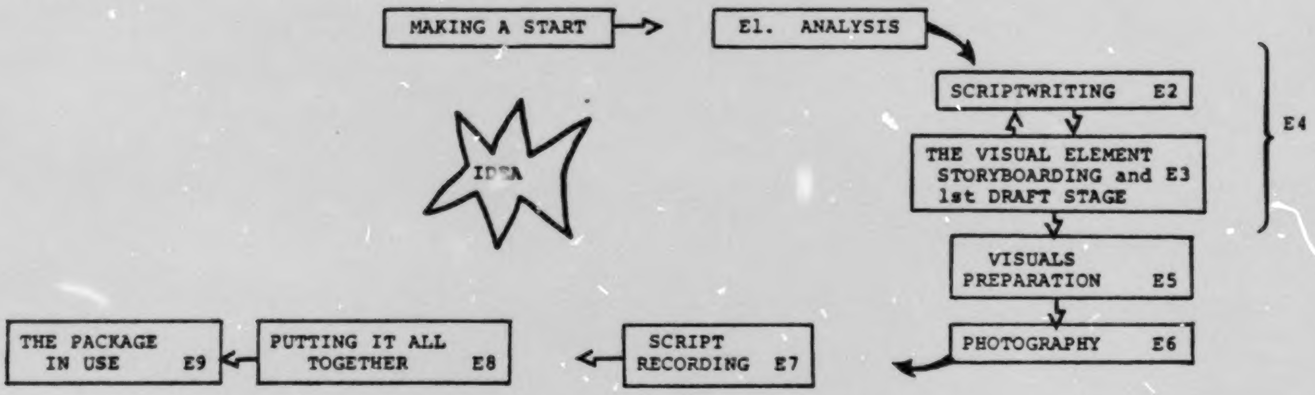
Evaluation can be carried out in many ways. We see it here as an on-going process, central to the development of the tape-slide. It enables us to gather feedback at the various stages in preparation and use, and we take the view that it actually saves the producer, time, money and effort.

Let's take a look at our concept map again (p.14).

As you can see, there are nine stages:

E1: Initial stage: Are the objectives correct?
E2: Sorting the script out
E3: Visualising the visuals
E4: Marrying the two channels of information
E5: Preparation of visuals
E6: Photography
E7: Recording the script
E8: Marrying the final versions together
E9: The package in use.

The Concept Map: Evaluation Stages


MAKING A START
E1. ANALYSIS
IDEA
SCRIPTWRITING E2
THE VISUAL ELEMENT STORYBOARDING and 1st DRAFT STAGE E3
E4
VISUALS PREPARATION E5
PHOTOGRAPHY E6
SCRIPT RECORDING E7
PUTTING IT ALL TOGETHER E8
THE PACKAGE IN USE E9

NOTE:

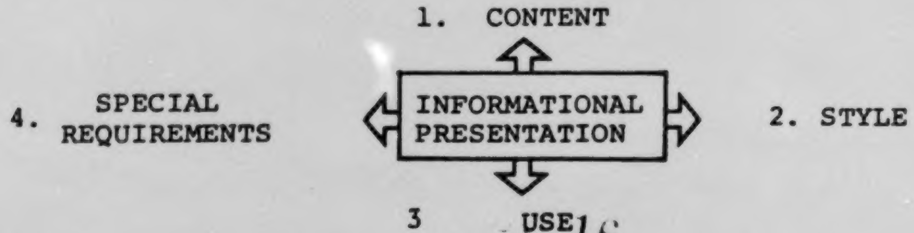
Although this concept map is presented in a linear flow, you will often find yourselves working backwards and forwards, re-writing scripts, re-shooting visuals etc. Don't worry - this is quite normal - but far too messy to illustrate in a diagram. I hope we will bring this point out well in the pages that follow.

POINT 3: The Different Types of Packages

Basically the type of package you choose to prepare will depend on what you want out of it. This really does underline the point made earlier: analysis for objectives is vital. Unless you know what you want your package to do, you can't begin to arrange it so that this can be achieved.

Packages have been used across the broad range of educational activities, to teach skill, fact, or elicit or convey feeling, and there is no reason why you cannot tackle any topic you like.

However, there is a group of influencing factors which are not usually made clear to users, and which determines HOW your information is presented:


1. CONTENT
2. STYLE
3 USE
4. SPECIAL REQUIREMENTS
INFORMATIONAL PRESENTATION

The type of subject matter to some extent predetermines the type of tape-slide presentation used, depending on each of the 4 areas above. Let's have a look at each of these in more detail.

The 4 Key Areas

1. CONTENT

The KEYWORD here is *PARTICIPATION*. Although many tape-slides you will have met are mere devices for presenting factual information, there are more ways of involving your students than just audio-visual facing. (i.e. putting an AV presentation in front of them). A good tape-slide will not just present information, it will have an effect upon the ways in which your material finally appears.

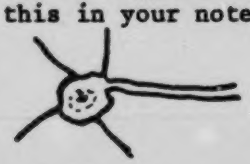
Basically, there are two questions to answer. *1)* To what degree do you want to involve your students? *2)* What type of response do you need? - What type of response do you expect?

The exact type of participation will, of course, depend on the type of response you think the subject matter demands. You can ask for either, or both, of the following:

COVERT RESPONSES are made by the learner, but are unobserved (and unobservable) by you. Such responses can be triggered by audio- or visual- instructions such as *"think the answer to this question to yourself"* or *"learn this information before you go any further"*. You will no doubt be able to think of many other examples.

OVERT RESPONSES are active and observable ones. You may like to ask your students to copy material in their books:

Make a copy of this in your notes:



or to verbalise, or write answers to questions:

Which of the following is true ?

(a) The site of protein synthesis in the cell is the polysome.
(b) The nucleic acid which leaves the nucleus is m-R.N.A.
(c) Enzymes are made in the Golgi bodies.

or to . . .

copy summaries into their notes, or perform certain skills

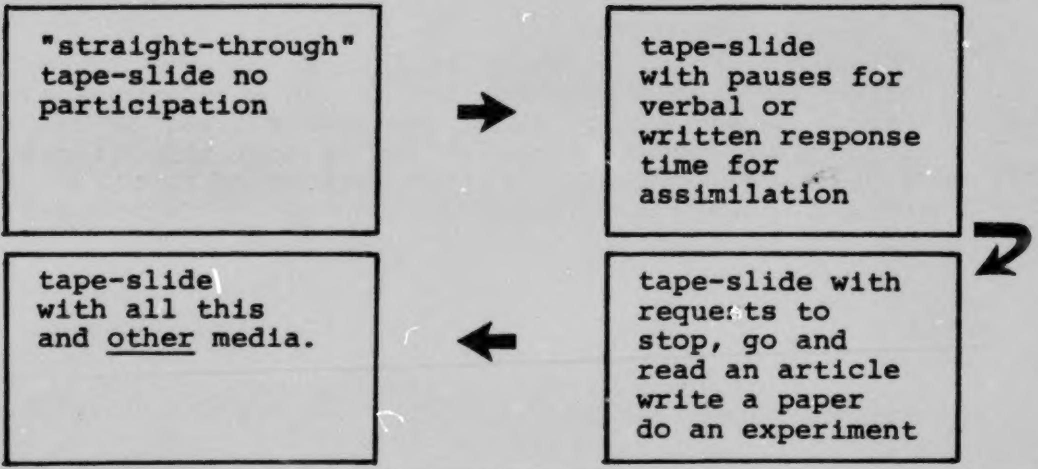
WHAT YOU HAVE LEARNT SO FAR:

i. the position of the heart in the thoracic cavity.

ii. the structure and function of the cavities and the valves.

How do you go about doing this? You can either carry the instructions on the audio track ("stop the tape and copy slide 4"..."read the printed material supplied with this package".... "review what you have learnt so far by looking at .....") or by visual slides (as in the illustrations), or by a combination of both.

So using these techniques will give your students some sort of participation - but have you decided HOW MUCH? The responsibility for the degree of freedom allowed here is yours and yours alone, and can range from:


"straight-through" tape-slide no participation
tape-slide with pauses for verbal or written response time for assimilation
tape-slide with requests to stop, go and read an article write a paper do an experiment
tape-slide with all this and other media.

ACTIVITY 4

Where does this leave you? Turn to page 4 in the Workbook, and in the light of your chosen topic, and written objectives, decide on the degree of participation you are going to have in your tape-slide.

2. STYLE
The keyword here is *EXCITEMENT* and it is concerned with the manner in which the subject information is put across. Later, in Section 4 we will explain about visual styles, so for the moment we'll confine ourselves to mentioning that the literal style of your presentation can range from serious to humorous and coldly factual through anecdotal to exaggerated. Remember this - we'll come back to it.

3. USE
The keyword here is *INVOLVEMENT* and it is concerned with how to influence your tape-slides reception. Are you planning to regard your students as tubs to be filled with facts, as rote learners, or as problem-solving individuals? Will they be encouraged by the vital nature of the tape-slide (vital, that is, from their viewpoint), the manner in which you use it, and its sheer quality?

4. SPECIAL REQUIREMENTS
The keyword here: *TECHNIQUE*. Has your subject matter any inherent requirements? (size: demanding the use of specialist lenses; sounds: demanding recording).

Turn to page 4 in the workbook, and make a note of any special requirements.

S3

Scriptwriting **pps 22 - 34**

From Subject to Script

WHY SCRIPTWRITE?
Some workers develop their script in an extremely ad-lib fashion practically at the microphone. This is very unwise because not only is it easy to miss out vital information this way, it is also quite difficult to do without making mistakes. The purpose of scriptwriting is fourfold.

1. It gives you a chance to express your logically-ordered objectives in language which is clear, concise and unambiguous.
2. Once written down, you have the chance to consider your work at leisure - is that word, description or phrase exactly right? - or could it be improved.
3. It enables you to "see" the audio-aspect of your tape-slide, and makes it much easier for you to decide how best to present this side of things.
4. And it serves to remind you that this is the audio element - so are there any specific sounds to consider?

LENGTH
Generally speaking, your tape-slide should not be longer than between 20-30 minutes. (If it is, it suggests that your initial topic is too big, and needs breaking down).
How much writing is this? Well, a rough guide is that 400 words take about 5 minutes to say aloud: the discussion of a slide about 50 words.

PREPARATION: We have supplied you with a Workbook to develop your script in - but in practice we find that typists bank paper (its cheap, light, easily cut up, and re-stuck) is ideal. Unless you have a favourite pen, write in PENCIL, and make sure you have a good RUBBER handy. Its much easier to rub out and re-write sections if you do work in pencil. And double-space your lines - it leaves you room to add, delete, and put in reminders to yourself! Sit in a comfortable chair, in a position which doesn't stress your back.

This is being written on my knee, on a noteboard as I've found it much less backache-producing than bending over a desk. (Alternatively sit in a hard chair, and use the physical discomfort as a form of discipline).

STARTING: It is surprising how many people do not realise the importance of starting a script properly. It sets the tone for the whole tape-slide. So start with the title, and then work out an introduction.

STEP 1.

- Introductions are very important - too many commercial sets plunge straight into the 'meat' of the subject, without giving the student any hint of what's to come. It is often well worth 'sacrificing' a couple of slides in order to "break the ice".
- Tell the student what the package will cover: and put the package content into the context of the course.
- Tell the student WHY the topic is important, and why you have chosen this particular medium for its presentation.
- If you are going to ask your students to stop to write notes, answer questions or do experiments - tell them NOW in the introduction.
- And if you know the students why not introduce yourself? Some tape-slides have photographs of the authors in the introducing sequence.

STEP 2. *(See also page 144 - "Late Ideas").*

- Now take your first objective. Remembering your subject matter (what it is based on), ask yourself "What have my students got to be able to do here as a result of working through this part of the tape-slide?" - "What knowledge, practice, experiences, attitudes do I have to supply them with?"
- Write the FIRST DRAFT of your verbal script for this objective.
- It will help you if you imagine that you have one or two students sitting in front of you while you do this: Write down what you would actually SAY to them.
- Now take your second and third objectives, and asking yourself the 2 questions above, write down what you would actually say to them.

ACTIVITY 5

Do this now, for your first 3 objectives, before you go any further. Workbook page 5 gives you space to do this.

DANGER POINTS

O.K. you've written the first draft of the script for your first 3 objectives.

Read it over again now.

Are you satisfied?

ONE

Nearly all newcomers to tape-slide scriptwriting make the same mistakes. We shudder when we recall how boringly DULL our first efforts were.

- Don't, whatever you do, write down lecture notes to be recorded - they will sound what they are - dead comments on paper.
- DO write as you would talk: personalise the script: talk to (not at) the students.
- Use active verbs, rhetorical questions, anecdotes, to put life into your script.
- There is no need to be "chatty" (your subject may not be able to be presented that way) - but, whatever you do don't be stiffly formal.

Two Activities to Improve Your Scriptwriting

ACTIVITY 6

(A) Read Ancillary Paper, Number 2: "Make it Readable" from Derek Rowntree's "Basically Branching". Although his book is concerned with writing programmed texts, there's a lot of good sense in this chapter. Try to apply it to what you have just written.

(B) Choose a good quality TV documentary such as "Horizon" "Man Alive" or "Panorama". Either tune out the picture or close your eyes, and concentrate on listening to their script. Pay particular attention to the language, pronunciation and phrasing used.

TWO

ACTIVITY 7

Look at your script again. You have probably presented a number of ideas which will be represented visually. Pay particular attention to the point where one idea joins the next.

- *How have you linked your ideas together?*
- *Does one flow into the next in an orderly manner, or does your script sound disjointed and fragmentary?*
- *A good tape-slide has a rythmical flow to it - almost a piece of poetry - and you should avoid disrupting this flow. Unless, that is, your intention is to bring your students attention up sharply.*

(You could at this point, if you like, refer back to the second activity on p. 27 and see if you can repeat it, this time concentrating to hear the flow of the language linking idea to idea).

THREE

Don't become too verbose, and go on ad nauseum. Can you think of activities to include for your students?

Now, back to the scriptwriting again:

STEP 3

- Repeat the process already outlined for your other objectives, until you have worked your way through them all.
- We find that rather than plough on, it pays dividends to put your script to one side now, and only come back to it after a period of time which can range from days to months. The advantage of this seems to be that this resting period makes it much easier to spot any short-comings in the script, and do something about them.
- We really cannot stress the importance of this 'resting' time enough.
- How many drafts should your script go through? It all depends on the complexity of your subject-matter .... and how well you have analysed and structured your objectives. We have found (for a wide variety of subjects) we need to go through at least 3 main re-draftings.

E

EVALUATION STAGE 2

How sound is your script? Is the language you have used acceptable? The words and phrases understandable? The content agreeable? There are four ways in which you can evaluate it at this stage.

ACTIVITY 8

Here are the 4 ways: read through them and choose to carry out at least 3 of these activities, recording your observations on page 6 of the Workbook.

1 Give it to a colleague, and ask her to read through it, and comment on it, either in writing, or verbally. This is a risky procedure ... it sometimes helps if you are both working on different tape-slides: when you can act as evaluators for one anothers scripts. If this doesn't appeal to you.

2 Give your script to a colleague, explaining that you would like her to read it out aloud, slowly, without commenting. You listen very, very carefully: and re-think and re-write your script as necessary.

E

3 Read through your script yourself. We don't find this as helpful as method 2: it seems to be easier to spot mistakes if someone else is reading.

4 Ask a student to read through your script, aloud, to you. Ask her to tell you if there are any places where she feels a bit lost. Remember though, that it is difficult to concentrate on giving critical feedback when one is concentrating on reading so it might be a good idea to give her an opportunity to read through it silently first.

- Or another way is to leave the student with your script and a tape recorder, and ask her to record her comments (i.e. *"I really don't understand page 21 - what is the diagram supposed to show?*) for you to hear later.
- If you do decide to use this way of getting student feedback, do make sure that your student understands how to use the tape-recorder - especially the pause controls.

WHAT NOW?

Well, by now your script should be taking shape. But before we go any further, go back to page 20 in this Guide, and re-read the Section headed "STYLE".

ACTIVITY 9

Do this now.

What do you think of your own particular style? Does it match the subject matter you have chosen? Or is it perhaps too serious, too flippant, too factual? Could you improve it? Style is very important, and will only develop with practice - so practice! Is the end result "really you"? This is important if you are trying to reach your students on a personal level.

A Word On Testing

Few commercial tape slides contain any built-in tests of student achievement. It could be worthwhile at this stage for you to consider if you want to include a formal test with your package; either as an integral (slide-tape) part of it, or as an inherent paper-based follow-up. Certainly, tests are useful in determining not only how well your students have done, but also how well your tape-slide has done.

ACTIVITY 10

Read Ancillary Paper No.3: "The Place of Tests in Tape-slides"

Safe Storage - 1

Now that, after all this effort, you have written your script don't lose it. We prefer to take a xerox working copy off the script (for everyday use), lodging the master in a safe (filing cabinet?) place. If you have ever lost a master copy at this stage, you make sure you never do it again!

S4

The Visual Element	pps 36 - 53
Storyboarding	pps 54 - 57
First Draft Stage	pps 58 - 62
Developing Your Visuals	pps 63 - 78

The Visual Element

INTRODUCTION

So you've written your sound script, tested it with some colleagues, and you're reasonably happy with it. What comes next? Well, in our scheme of things, developing the visual element.

IMPORTANT

This section is vital to your success.

Remember that the tape-slide itself is a two channel process:

- visual and
- auditory

Research shows that it is the visual channel which is dominant: so rely on your slides to carry the important information and support this with the audio-commentary.

The reason you include any visual in a tape-slide set is to provide information in a direct, stimulating and challenging fashion:to make your students understanding easier. Too often, tape-slides fall down BADLY on the quality of their visual component, even, we regret to say, when produced by "experts". So we're going to spend a few pages discussing some visual considerations which need to be taken into account BEFORE we actually start you storyboarding.

It is very, very important that you read through this section carefully. This information is not readily available elsewhere, and from the evidence of packages we have seen, there are few people capable of planning and producing a really excellent package. We want to stress that even commercial producers, trained artists, or medical illustrators may not be aware of the full range of possibilities in a tape-slide set. It is YOUR responsibility to be able to apply these in practice, or brief someone else effectively.

But don't worry: we don't expect you to be able to produce beautiful artwork; just to be aware of some of the factors there are to be considered.

Visual Awareness

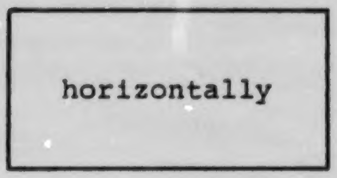
CONTINUITY

This is the most important concept in the planning and production process. It refers to the way in which all the various elements that go to make up tape-slides fit together to make a harmonious whole. In the context of visual considerations, we need to look at 6 types of continuity:

① Continuity of layout
② Continuity of colour
③ Continuity of artwork
④ Continuity of typeface within the artwork
⑤ Continuity of photographic style
⑥ Continuity of channel information

★ 1 LAYOUT

The various elements that go to make up your visual (in other words, 35 mm slide), are arranged in a rectangular area, either

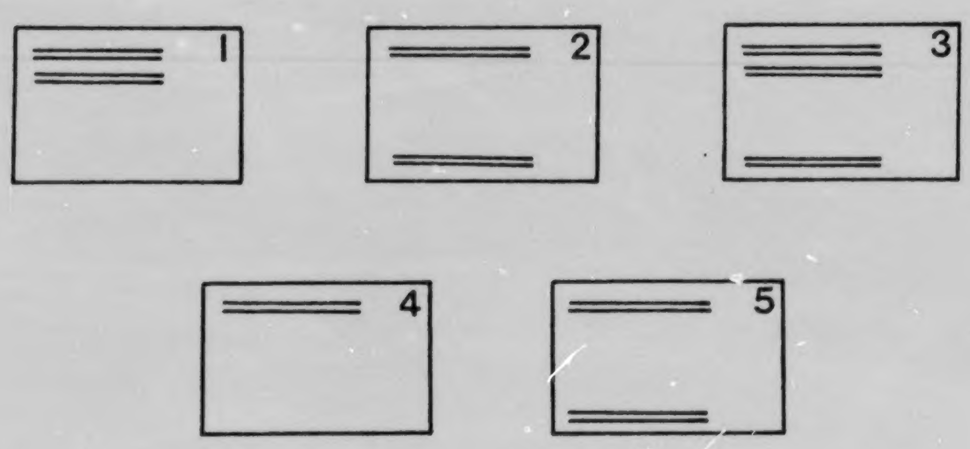


OR

vertically

And the POSITIONING of these various elements should be comparable from slide to slide, so that you build up in your audience an EXPECTANCY of where (visually) certain types of material can be found

In other words, think of the separate slides in your package as pages in a book: and plan your layout so that, for example, titles, question-and-answers, occupy similar positions in different slides.

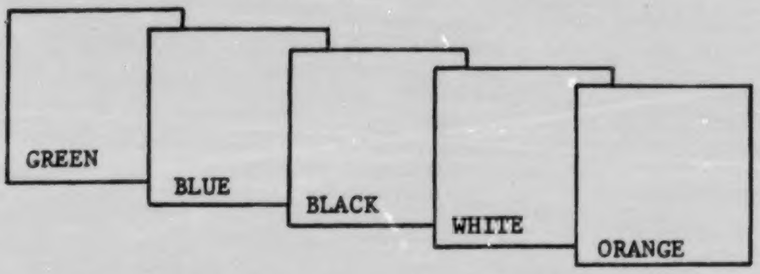


★ 2 COLOUR

This is an area where most mistakes are often made. It is distracting and unhelpful to make too much use of colour, and you should always approach the use of colour in your visuals from the point of view of: is it necessary?

● Don't for goodness sake, use colour just for the sake of it, as it can prove distracting, in one of two ways.

For example, in what is called "successive colour contrast"



(if these are the background colours ... imagine the effect on the viewer).

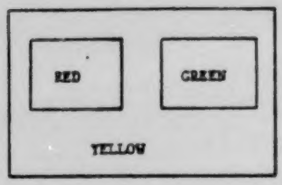
When you plan a series of slides, avoid changing the background colour widely from one slide to the next: the clashing colours and the variations in the brightness of the projected image will annoy your viewers.

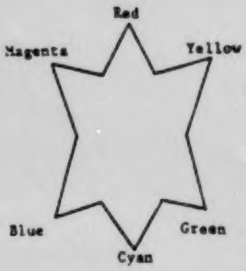
- Another way in which colours can be distracting is when they contrast within a visual:

  Avoid using complementary colours within the same slide. When these are viewed simultaneously, they will cause eye tension, fatigue and reduce legibility. (Indeed,this particular combination can even produce nausea!)

  How do you know which colours are complementary? - use this colour star.
  Complementary colors are opposite each other on the colour star.

Simultaneous Colour Contrast:



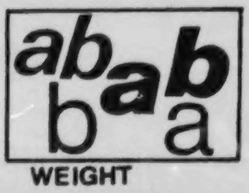


★ 3 ARTWORK

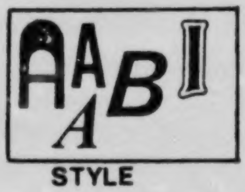
As we will see later (pps 82/89) there are a number of approaches to designing your artwork. The thing to keep an eye on here is that the style you use does not vary too greatly, just for the sake of it, within your tape-slide.

★ 4 TYPEFACE within ARTWORK

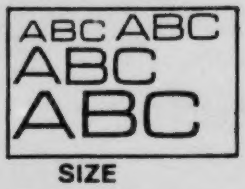
If your intention is to produce some slides from your own artwork, then continuity of typeface is important. This means that you will have to decide on how to produce your typeface, as well as which typeface to use. Basically you want to aim at using a face which is legible, clear, and does not vary in weight, style, or size from one slide to the next like these.



WEIGHT



STYLE



SIZE

Pps 67 - 71 go into more details on this.

★ 5 PHOTOGRAPHIC STYLE

When you are taking a series of slides, it is important that you should remember to keep fairly rigidly to a set style of photography.

This is important in terms of composition layout, framing, lighting effects, and colour balance.

Dramatic variations in style can be useful in tape-slide sequences which do call for a strong emotive affect - for example, where you need to bring your students attention up sharply. But this type of use should be well planned, or any break in the photographic 'feel' will be disruptive and help to destroy the continuity framework you have tried to build up.

It is also worth remembering, if you are using slides from a variety of sources that an individual person very often has a personal photographic style, just as they have a distinctive style of handwriting. So it is important to try to balance out any variations in style when you are putting together an overall sequence from other photographers work.

★ 6 CHANNELS

Please do remember the point that it is the VISUAL channel which conveys the information.

- Be aware that you should not go on to talk about a new teaching point on the audio track whilst you are showing a slide which refers to the previous point.

Before we go on to look at some more visual considerations try this activity.

ACTIVITY 11

Take 2 tape-slides from your School collection: either home made items, or commercial productions. Turning to Workbook page 7, go through the slides, and record your observations in the Table.

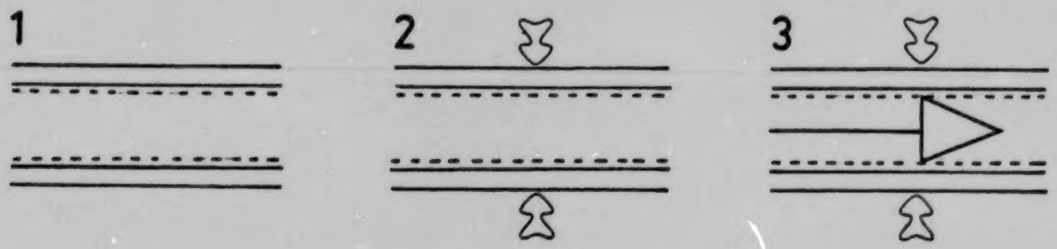
Do you begin to see the importance of continuity as a concept? Now, back to the rest of the VISUAL CONSIDERATIONS.

Some Other Visual Considerations

Another point to watch on the preparation of visual is in the amount of information presented in any one slide. While there is a point in having quite complex slides (for revision purposes) the general rule should be - KEEP IT SIMPLE.

How MUCH information you present at any one time will depend on the nature of your subject matter, and the ability and background knowledge of the audience.

Always build up to a complicated diagram or set of information (see over). If in doubt, keep your slides simple, and use more of them.



Research (by DWYER 1970) has shown students do have problems in organising visual material which contains a lot of information.

Style

This is a miscellaneous sort of section, into which we'll bring some of the factors we've already discussed.

TYPES OF SLIDE

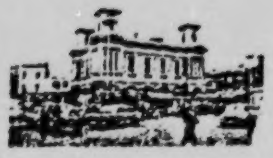
So far, we haven't mentioned the purpose of using any one particular slide. You see, in a package such as we are intending to put together, your slides could serve as simulations of "the real thing" or as cues in an exposition, or as reinforcers to what has gone before.

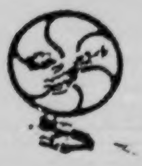
Basically, the visuals you choose to prepare can be taken from real life situations: or they can be from prepared (or acquired) artwork.

(a) Types of Real-Life Slides

People

Situations or Events


Objects


3D models

"Real-life" slides may be used whenever they are relevant, easy to obtain, and easily understandable.

How do you decide when to use "real-life" and when to use "artwork" slides?

This is quite difficult, and in the end it will rely on your knowledge of the subject and your students.

However, practical considerations such as -

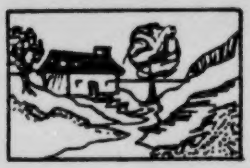
- Have you got access to an artist?
- "Can you get to a particular location to take the 'real-life' slide you need" - this will probably have most influence on you - and you'll gradually become more experienced on making the choice anyway.

ACTIVITY 12

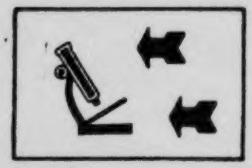
There is a considerable body of research evidence available in this field. Get hold of a copy of "Strategies for Improving Visual Learning" by F.M. Dwyer (1978).

(b) Artwork Slides: these can be included at any point, and, as your recent reading will have shown you, are very useful to simplify real life situations; break down and explain abstract concepts; give instructions; pose questions or offer reviews.

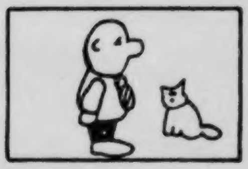
Some examples are:



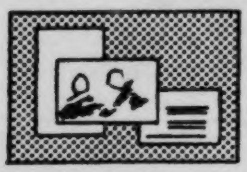
freehand drawings



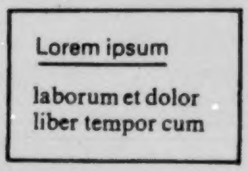
Diagrams



Cartoons



Collages



Lorem ipsum

laborum et dolor
liber tempor cum

Written material

Colour and Legibility

If you are going to use writing on your slides, do bear in mind that the legibility of such lettering depends on the colour of the background in relation to the colour of the letters themselves.

↑

increasing legibility

decreasing legibility

↓

BLACK letters on a YELLOW background
GREEN on WHITE
BLUE on WHITE
WHITE on BLUE
BLACK on WHITE
YELLOW on BLACK
WHITE on RED
WHITE on ORANGE
WHITE on BLACK
RED on YELLOW
GREEN on RED
RED on GREEN
BLUE on RED

Other points you may like to take into account are that blues tend to cause information to recede - reds advance it. And the tone of your colour is important: darker tones will tend to make images appear smaller than lighter ones.

(c) "Right" and "Wrong" Slides: How can you show 'don'ts' when you are producing your slides ? Normally you should not show *'bad practice'*. However, if you must show it, you could try using light (i.e. not boldly drawn lines) cartoon graphics with a large red ✗ across the slide for the wrong approach - and contrast this with live modelling for the correct approach.

Preparing to Storyboard

GETTING THE IDEAS

The important thing to remember is
You don't have to be an artist!!

- Get your ideas from wherever you can - "borrow" ideas from other tape-slides dealing with your subject (but read page 107) from textbooks, magazines, nursing literature: both professional, promotional and popular.

Tracing paper works wonders!

Unfortunately, there are very few books on the market which give sound advice on producing ideas visually, but one really excellent one is "Television Graphics" by Ron Hurrell, published by Thames & Hudson (30 Bloomsbury St. London WC1B 3QP) 1973

And you will find Robin Williams' article (see Bibliography, p. 142) invaluable.

HOW DO I START? WHAT DO I DO?

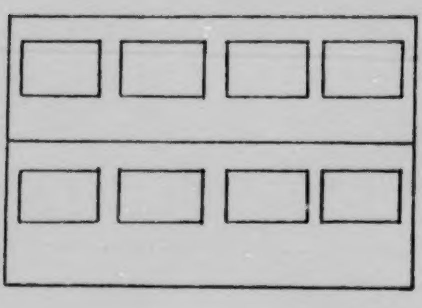
You've got your verbal script, and, hopefully, some ideas already buzzing around on how best to present your subject in visual terms.

Bearing in mind what you have learnt under "Visual Considerations", and the maximum number of slides available to you, what's the first thing to do?

Take your blank storyboard, and put it on the work surface in front of you.

WHAT'S A STORYBOARD ?

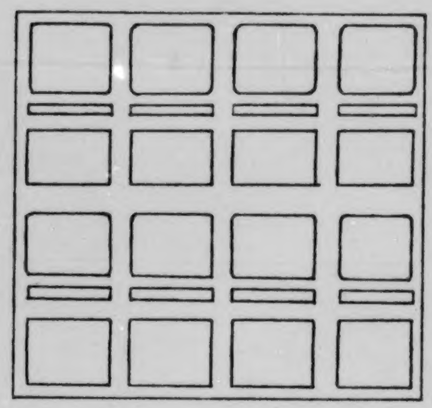
Quite simply, a device on which to record your ideas for each visual. You can use a number of plain 5" x 3" or 8" x 5" file index cards, but I find that it is much easier to use special layout pads (called STORYBOARDS) to do this work on.



You can either
print your own
(see Workbook
page 8) ←

or

buy a commercial
one. →



The advantage in using the commercial sort (like the one supplied in the package) is that you can write down each segment of sound script with its associated visual, and, using the perforations, separate and rearrange your visuals at any stage.

Storyboard suppliers: Messrs Geliot Whitman Ltd. Herschell Road, London, SE23 1EQ. Tel. 01-699-9262. Sold in packs of 5 or individually.

Whichever you do use the idea is that you will summarise each visual (in as rough and unartistic a sketch as you like) to show the relationship between the main subject and other parts of the picture, and between each successive slide.

- Remember It DOESN'T MATTER if (like me) you can only do "pin-man" sketches, you should try to express your ideas visually. Even though you may have an artist available, its still up to you to suggest visual ideas to go with your script so that you can work on them together.

Tell Me What I Do. Again

Take your blank storyboard and put it on the work surface in front of you. Take your verbal script and read the first paragraph - which should be your introduction.

- Does your subject need a Title slide? (Its always worth having a way of identifying your tape-slide) - O.K., lets make this Slide 1, and for the moment, just write the title down in space 1.
- Now, are you giving instructions to your students on how to use the tape-slide? - do you need a visual for them to look at while they are listening to your instructions?
- - if you do, make this slide 2.

The next step is to introduce your content. Are you going to jump right into your subject matter - or are you going to give your students a general view of what the tape-slide will cover first of all?

ACTIVITY 13

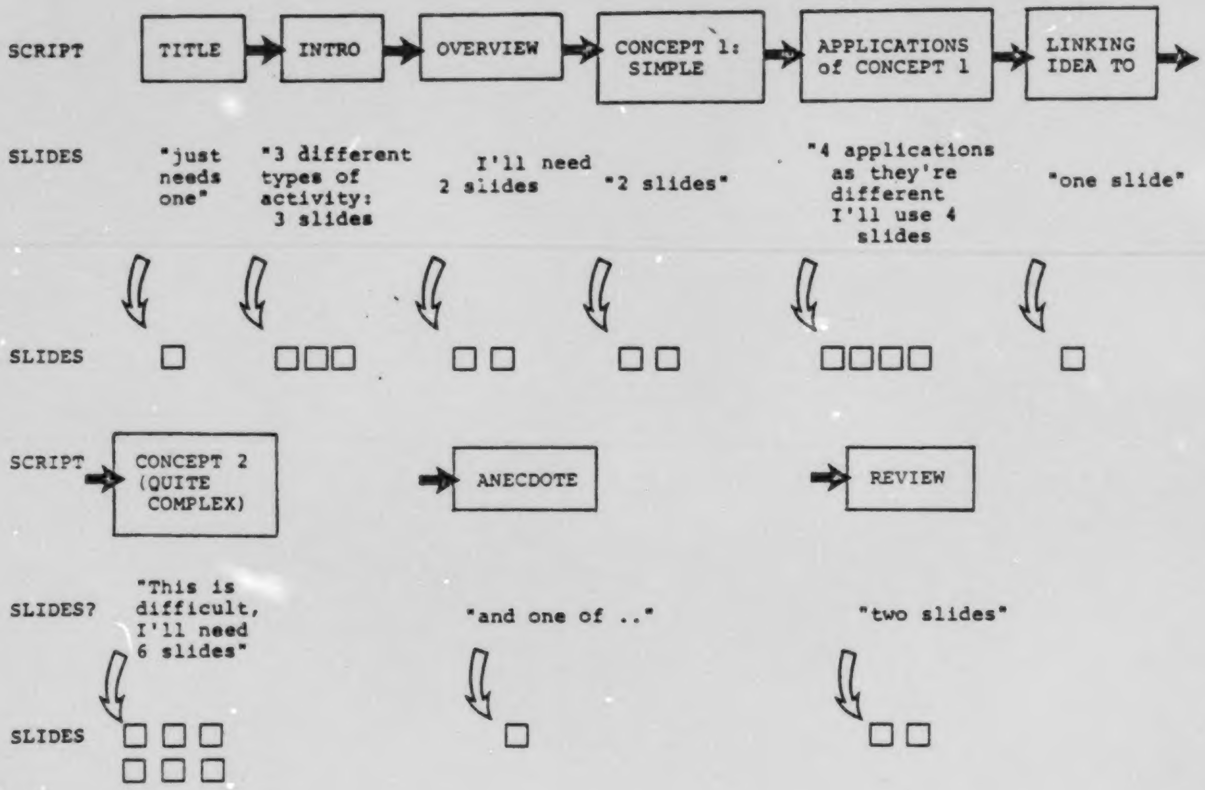
Take the storyboard provided, and put down your ideas for the first, introductory slides.

WHAT DO I DO NEXT?

Step 1: Classifying the slides.

Once you actually get into the subject matter and are faced with expressing yourself, we find a very useful trick is to work very quickly through the script, deciding how we'd like to express each idea in visual terms. At this point we are concerned with making sure that we have neither too many nor too few slides to each idea.

Perhaps we can illustrate this better graphically?


SCRIPT
TITLE
INTRO
OVERVIEW
CONCEPT 1: SIMPLE
APPLICATIONS of CONCEPT 1
LINKING IDEA TO
SLIDES
"just needs one"
"3 different types of activity: 3 slides
I'll need 2 slides
"2 slides"
"4 applications as they're different I'll use 4 slides
"one slide"
SLIDES
SCRIPT
CONCEPT 2 (QUITE COMPLEX)
ANECDOTE
REVIEW
SLIDES?
"This is difficult, I'll need 6 slides"
"and one of .."
"two slides"
SLIDES

While we're doing this, we're also roughly classifying each slide as either a "real photograph" or a piece of "artwork". (Though this can be varied at a later stage depending on the type of emphasis you need from each visual).

And at this stage, we're not concerned with producing beautiful sketches - only with roughing our ideas out.

- So the first step is to run rapidly through the subject matter, and sort out the TYPE, NUMBER and rough visual ideas that we will need.

WHAT DO I DO NEXT?

Step 2: Firming up the sketches

Very simply, at this stage, we try to elaborate slightly more, putting the details into each sketch.

ACTIVITY 14

Using the storyboard you have already started on, work through your script and prepare your first-draft storyboard. Don't forget a "The End" slide! and- if relevant - a "credits" slide.

E

EVALUATION STAGE 3

You may remember that the first stage of our ongoing evaluation consisted of reading (or having the verbal script read) aloud and listening to the way the script sounded.

The second stage in ongoing evaluation is to ask a colleague (or better still, a student) to look at your visuals (in their rough form) while you are reading the script out to them and to comment on how easy they are to understand. You may like to make a crude tape of your script at this stage to enable more than one student to work through the visuals.

● Comments received from students at this early stage mean that you can alter your visuals (if necessary) without wasting a great deal of time or money. For one thing, a rough sketch is more easily altered, and for another, you are more open to correcting a very rough sketch than one you may have spent an hour on preparing.

ACTIVITY 15

Use Workbook page 9 to record your evaluation at this stage.

WHAT DO I DO NEXT?

STEP 3: ELABORATING ON YOUR SLIDES

Step 1 gives us a skeleton, and step 2 results in a crude product which has been evaluated by staff and students. You are now at a position where you can start thinking about elaborating on your rough sketches.

First, will your budget allow "art materials" (see pages 82/83). If it will then you can make decisions on the degree of quality that you can afford, or should afford, depending on how the tape slide is to be used.

Lettering

Now for a validation (first copy) tape slide, you could find that neat hand-printing will do: unless the card trial that you have just carried out shows that your visuals work. If it does, you then have to decide which of the 3 main lettering systems on the market meet your budget and needs.

a. Typewriter-generated lettering

Usually the sort of typewriter that you will have access to will not produce results which are clear enough to photograph. You really do need a carbon ribbon and even, unsmudged, type.

If you must use this way of generating the lettering for your slides, you can get the best results with an electric typewriter, specially where there is a range of type faces available (as in the "golfball" machines).

Examples of golfball faces

Prestige Elite	Artisan
Light Italic	*Script*
Courier Italic	Letter Gothic

But please do realise - unless you have specialised photographic equipment, most typefaces will not give you sufficiently clear slides. This does, however, depend on quite a lot of factors - distance of viewer from the screen, audience size, projected image size etc.

If you do want to try typewriter-generated lettering, take care not to put too much information on the slide - it's very easy to do.

See how you react to the amount of information in each of these boxes.

1. There is a very real temptation to prepare graphic work for slides by typing onto a piece of paper and photographing the result. While this may work for very small audiences, what usually happens is that too much information is put onto one slide.

2. This information results in eyestrain fatigue and frustration on the part of the audience, with a consequent loss of attention. Long sentences like the last one don't help much either ! Although using a typeface like this does mean that slides can be made quickly and easily.

3. What you gain in preparation time you probably loose in effectiveness of presentation.

   Imagine the reaction of your audience if you put this much information on a projected slide !

4. If you have no other alternative

   at least use the LARGEST

   typeface you can find, and

   space so that there is
   space between each line.

And remember - a carefully selected coloured background may improve the legibility of any typewritten slide (see page 52).

b. Stencil-generated lettering

Various manufacturers such as W.H. Smith, Chartpak, UNO, Econosign etc. market stencilling kits. While those are fairly easy to use, and relatively cheap (and do give quite reasonable results) they do have the drawback of needing a good eye for lining up, and present difficulties when you make a mistake!

We really would advise you to try to avoid stencil systems - unless you practice a lot, they can produce poor layouts. You're often better simply hand-lettering.

c. Dry-transfer lettering

Dry transfer letters are self-adhesive characters contained on carrier sheets, sold in a wide range of type faces and type sizes. Common makes are LETRASET, RAPITYPE and MECANORMA.

ACTIVITY 16

Spend a few minutes browsing through the Catalogues supplied with this package, to get an idea of the wide range of typefaces that there is.

Seven Decisions to Make:

Here are seven decisions you can make about your lettering:

★ DECISION 1: BACKGROUND COLOUR

A coloured background reduces the effect of surface dust on the slide when projected, it can reduce glare from the projected slide. So: what colour is appropriate as a background to your slides?

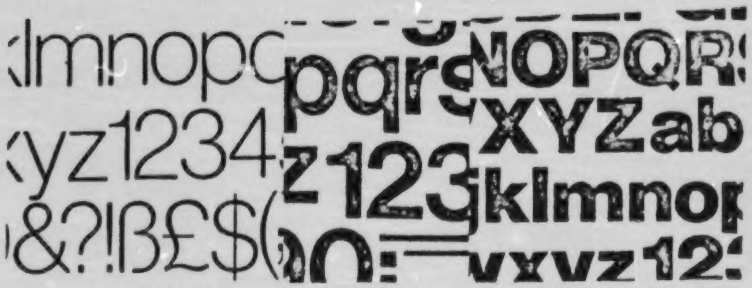
★ DECISION 2: SERIF OR SANS SERIF?

Basically a typeface may be classed as either "serif" or "sans serif". Avoid using serif faces: their fine lines may get lost on projection, and, more practically, they are very difficult to lay down.

VWXYZ abcdef ghijklmnopqrstuv	WXYZ abcdefg hijklmnopqrstu
SERIF	SANS-SERIF

★ DECISION 3: WEIGHT

Some of the more common sans-serif faces can be bought in three "weights" light, medium, heavy. If you want to play safe, especially if you're working on a large sized face, choose medium.



light medium heavy

Faint faces can get lost in visuals, or break up on projection, and heavy ("bold") faces may fill in when your artwork is reduced down to 35mm size.

★ DECISION 4: LEGIBILITY

Is it Legible? The Legibility of any typeface can be established by covering up the lower half of the characters of a made-up word. If some-one can then read the visible half of the word, the typeface will be legible when projected.

Page 69 illustrates some examples of legible typefaces.

ABCDEFGHIJ

Compacta

TUVWXYZ ab
cdefghijklmnop

Folio

NOPQRSTUVWXY
Z abcdefghijklm

Grotesque

ABCDEFGHI
JKLMNOPQ

Helvetica

UVWXYZ abc
defghijklmnop

Univers

★ DECISION 5: SHEET SIZE

Unless you intend doing a large number of slides don't buy LETRASET: the sheets are large, storage becomes a problem. We have found the Mecanorma "transfer-card" system better from a handling/storage point of view. And remember: the smaller the size of typeface you use, the more you get of it on a sheet, the cheaper it becomes!

★ DECISION 6: UPPER or lower case?

Another problem is knowing whether or not to use UPPER case characters or lower case. Research has proved that the eye reads mixture of characters much easier than just UPPER CASE ones. However, the use of upper case alone is often employed in main titles. Subtitling and words you may want to emphasise benefit more from underlining or colour boxing.

★ DECISION 7: MIXING FACES

Are you going to mix typefaces for the face weight? (e.g. Heavy, Bold face for main title, medium, light face for text). Whatever you do decide, you must reach a choice that remains compatible to each face and to the tape-slide in total

ART MATERIALS will be considered in detail in the next section.

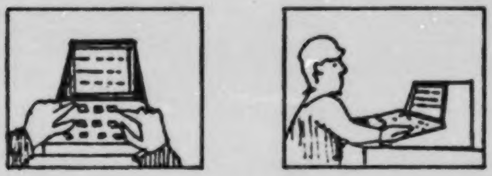
ACTIVITY 17

Using Workbook page 10, look through the slides from any two tape-slides that you have around.
Record your reaction to their lettering on the table provided.

Four Photographic Guidelines

When you are planning your real life slides, there are a number of useful guidelines to be aware of.

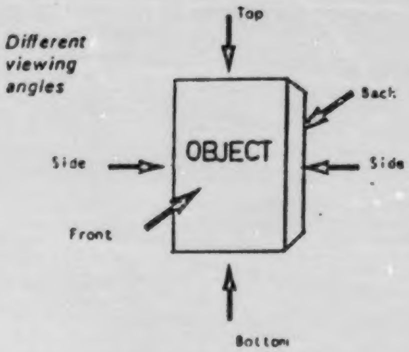
✡ GUIDELINE 1: Shot Position



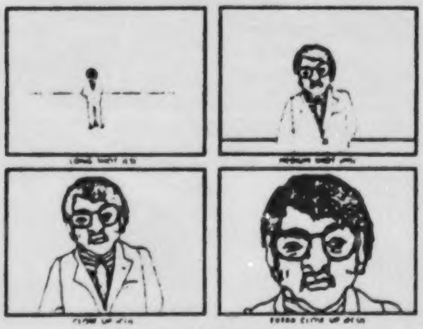
Research evidence suggests that the learning of physical skills improves if your visuals are shot from the view-point of the person who is actually performing the skill.

✡ GUIDELINE 2: Viewing Angle

There is a wide variety of angles from which your subject can be photographed. When you are taking a series of slides with the same object in it, try not to jump around it too much! (see also shot continuity page 74).



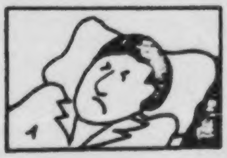
✡ GUIDELINE 3: Shot lengths



(a) Shot Lengths:
Use different shot lengths to achieve the degree of emphasis you want to place on the main subject in the slide. Unless deliberately done, avoid jumping from one extreme (Long shot) to the other (extreme close up).

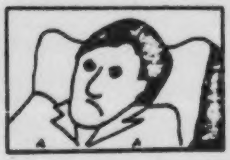
(b) EMPHASIS ANGLE. Consider where the main subject is in relation to the rest of the slide or an observer, not shown. For example if the tape-slide is describing a patients condition, with the patient in bed, a realistic view would be

looking down



not

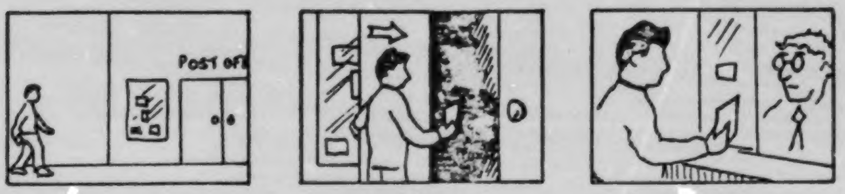
eye level



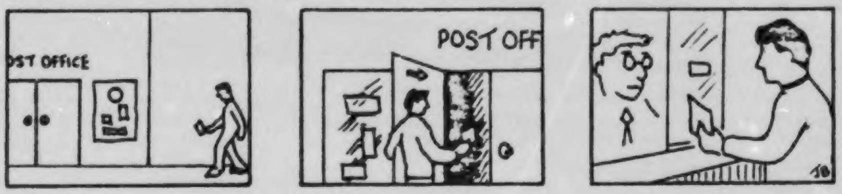
because this is how nurses generally view patients.

✡ GUIDELINE 4: Shot Continuity

This takes place on two levels: in the location of the main object of interest within the frame, and in its position in each frame in a sequence of visuals.



CORRECT SEQUENCE: Subject maintains continuity.



INCORRECT SEQUENCE: Subject switches direction mid-sequence.

Now if you've taken these factors (the effects of budget on artwork quality and guidelines to real-life photography) into account, you can elaborate your slide sketches.

ACTIVITY 18

Go through your storyboard again. Looking at it as a whole, decide on the background colour for artwork slides. Choose a typeface for your artslides which reflect the content of the tape-slide. Examples of this are shown on Workbook page 11.

Numbering The Slides.

If your tape-slide is predominantly artwork-based, you could consider numbering the slides (so that each slide's number actually appears, on projection, on the screen) This has the obvious advantage of providing an immediate visual reference - but the serious hidden disadvantage that updating (by adding or deleting slides) becomes difficult.

If you do decide to do this leave the numbering to the *very last* moment before you take the photographs.

If you haven't already done so check on the continuity and appropriateness of your shot angles and shot lengths.

REVIEW: WHERE WE HAVE GOT TO, AND WHERE WE COULD GO NEXT

Let's just remind ourselves of our progress so far. We have successfully chosen, analysed, and written objectives for subject content, and produced a test (if necessary) verbal script and storyboard. We have evaluated our chosen objectives, written the script, suggested visuals, and modified them as necessary.

What we have to do now is to make a final check on our storyboard, before deciding WHO will produce the tape-slide.

EVALUATION STAGE 4

This step is for your to check the dynamic interaction of the two elements in your package.

REMEMBER a tape-slide is not a series of thrown together slides, with a few words describing each: it is an entity in itself, with each part supporting the other.

- If you haven't already done so make a crude tape recording of your script. Read in a moderately slow voice - you can build up the pacing in subsequent practices. Now sit down with your visuals in front of you, and play the recording back. (Why a recording? its very difficult to physically read from a script, and look at your slides at the same time).
- Listen and look critically. Does what you are SAYING match up with what you are SEEING? Are there any unexplained slides? or verbal commentaries which either do not relate to what you are seeing at all, or else need another, separate slide.
- Do this, re-working your tape-slide storyboard, until you are satisfied with the result.

S5

Visuals Preparation pps 80-96

Who IS Going to Produce Your Tape-Slide ?

If you have a medical artist or media officer in post, or within your School, then you can probably ask them to produce your tape-slide.

If you do have these persons available you are still responsible for the evaluation side and by useful discussion with your producers, can incorporate any points/changes they may bring to your attention. The important thing here is to keep an open mind.

In that case, you will have gone far enough. But probably you won't have access to either of these professionals. So what should you do - start worrying about how to actually produce the end result?

NO

Before you start to draw, photograph or record, stop and think. Is there anywhere else in your geographical area where you could get this work done? Perhaps you live near a University, College of Art, or Further Education College, or somewhere like that? Might you be able to offer their students real-life useful projects to work on?

If you can, then you may have to negotiate, and even sacrifice some of your more set ideas to get a balanced viewpoint. Such students can be over-anxious and want to alter your ideas to present their own design in order to justify their involvement.

81

It's worth the price of a telephone call to find out.

Of course, if you don't or you want to try yourself .....
well ..... read on!

Preparing the Artwork

This part of the Guide is not going to turn you into an accomplished artist, but may give you a few tips you haven't come across before.

MATERIALS

Go to your local artshop, and take up any and every opportunity to browse in artshops whenever you come across them. Its often amazing what you come across "just by chance".

CATALOGUES

Acquire one or two good quality art materials catalogues useful for picking up ideas "GELIOT WHITMAN" Herschell Rd. London SE23 1EQ is certainly worth obtaining - telephone them on 01-699 9262 to find out the current cost.

PAPER

For planning your visuals in more detail, use pads of LAYOUT PAPER This is a thin white paper which is useful for tracing information through (it saves you re-drawing and re-drawing). However, it differs from tracing paper because in isolation it looks like real, "solid" paper. A4 and A2 sized pads are very useful.

COLOURS

Never use spirit-based felt-tipped pens. These will dry out very quickly, smell horrible, and are a health hazard.

Instead, for rough artwork, use BIC Porous Pens or Berol felt-tips (available in 12 colours) or Stabilayout Wedge Markers.

If you are going to colour large areas, or present artwork on a coloured background, buy flat coloured paper sheets.

You can make your colouring much easier (but more expensive) by using products like "Letrafilm" colour tint overlays or similar products.

ADHESIVES, TAPES and OTHER ACCESSORIES:

Cow Gum/"PRITT"
Scotch Spray Mount Adhesive
Double Sided cellotape
Masking Tape
Cellotape

Steel ruler, Set Square, Ruling Pen
Pair of Compasses, Scalpel,
sable-hair paint brushes.

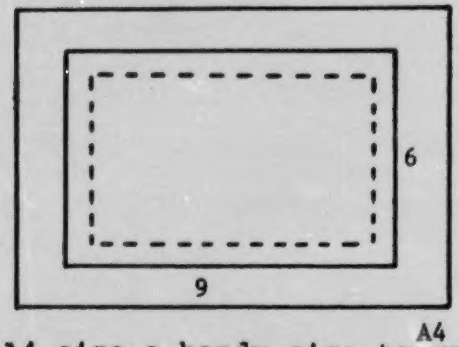
A "Uchida" cutting mat (see "sources") is an invaluable aid.

Hints and Tips

- Get hold of as many useful articles and booklets as you can (see Bibliography pages).

- Where possible, keep your artwork originals all the same size, and to the 35mm format!

Any picture area must fall into the 3:2 size ratio.



- We find the A4 size a handy size to work to.

- Remember to leave 1¼" "bleed" around the paper.

- If you have the time, full-sized "roughs" can be drawn up on A4 layout pads, giving as much detail as you like (if you are going to then use the roughs to brief your artist)

- If you intend to move from the roughs straight to the artwork for photography you may like to work directly onto the artpaper you have chosen.

- Only work on white paper where you are going to produce black-and-white slides. If you do intend doing this, you can use special film.

- One way of getting round this problem for written slides (and drawing, come to think of it) is to use the negative as the projected slide.

- When drawing, work on a smooth surface, with your paper taped down with masking tape. The cutting mat recommended on p. 83 is ideal.

- Store your artwork in a rigid folder, either flat or in a suspension filing system - but whichever way you choose - don't leave it lying around.

Lettering Again

Our experience has shown us that this is an area where most people feel inadequate: and yet, it is the one area where anyone, with just a little practice, can soon produce professional results. So refer back to pages 64-71 again.

Laying Down Lettering

There are a number of ways of laying down dry-transfer lettering onto artwork. There are two which we've found simplest and quickest.

The first thing you have to do is to decide WHERE in your visual you are going to place your lettering. Remember the idea of "continuity". Until you become experienced it helps to roughly trace out the word or phrase from the dry-transfer sheet with tracing paper - this gives you a good idea of how much space you will be taking up.

AN IMPORTANT TIP

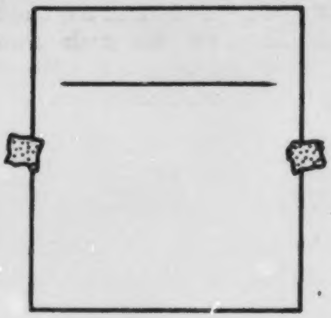
Avoid putting lines of information too near the top or bottom edges of the paper - otherwise you will have great difficulty in getting the lines parallel with the edge of the frame in the final slide.

ACTIVITY 19

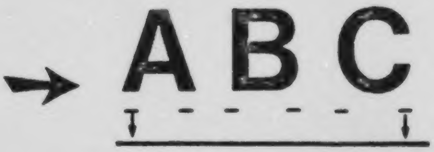
Take out the Mecanorma Transfer Card supplied in this pack. Look carefully at the characters on it. Can you see the dotted lines underneath each row of characters? These lines are to make the laying down easy.

Method 1

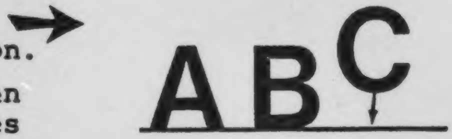
If your artwork is not transparent enough for working on a light-table (see below) you can fix your artpaper to a smooth working surface with strips of masking tape. (This is a special tape which can be removed without damaging the surface of the art-paper). Then, make a fine pencil line on your artpaper where you want the lettering to go, so that it looks like this.



You can line up the characters on the dry-transfer sheet either by using the spacing lines under each letter, lining them up on the line you have just drawn,



or you can use the pencil line to put the edge of the actual characters on.



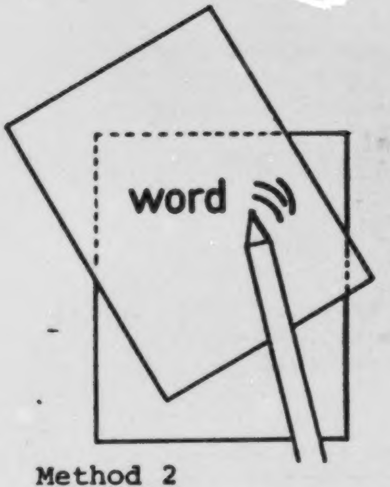
I prefer the first method, as it is then much easier to rub away the pencil lines without damaging the dry-transfer letters and it's quicker!

The next thing to do is to take the backing paper (the sheet that looks like grease-proof paper) away from the lettering sheet, and position the first letter on the guide-line you have drawn.

Shade *lightly* over the whole letter with a ballpoint pen, soft pencil, or spatula until all of the letter has changed colour.

Very carefully peel the lettering sheet away from your artwork surface. Repeat this procedure with the other letters of your work, until you have laid them all down on the artpaper.

You are now ready to *burnish* the characters.



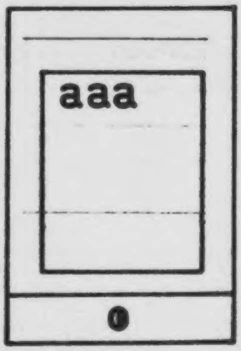
Burnishing is a process you use to ensure that each character is firmly adfixed to the artpaper.

Lay the backing sheet over the word you have put onto the artpaper, and rub firmly over it, either with a finger, or with a biro.

This is very important if you use *serif* characters, or if the characters are very large.

Method 2

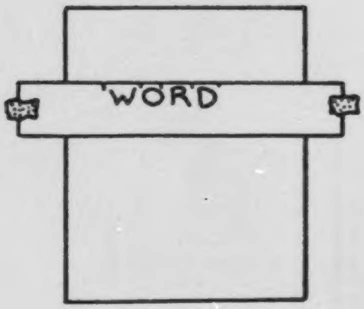
Before you lay any lettering down by Method 1, try this way, as it's quicker. Use a light-table, or an X-ray viewer flat on its back. Tape an A4 sheet of graph paper to it, and put your artwork sheet on top of this. Switch on. If you can see the graph gridlines through the artwork, you're in business! Simply tape your artwork down firmly and use the graph gridlines as a

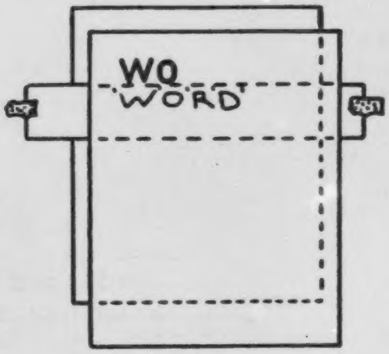


guide to lay onto, instead of a pencil line!

Method 3.

In this method, you trace out your word on a strip of paper first, moving it over the typeface you have chosen, spacing correctly. Then you use this strip as a guideline when you come to lay the typeface down accurately:





SPACING YOUR CHARACTERS

There are very simple guidelines about character spacing when you are laying down dry-transfer letters. The diagrams below illustrate these.

SPACING

- **Not level-characters uneven**

S P A C I N G

- **Characters too far apart**

Erratic SPACING

- **Erratic spacing**

Perfect SPACING

- **Characters should be like this.**

Correcting Mistakes

Mistakes can easily be corrected by using a small piece of masking tape and just touching the mistake with it - this will lift the characters off the artpaper. Lightly rubbing with a very soft rubber also works.

And Finally, a VERY IMPORTANT TIP

Read every word as you lay it down, BEFORE you start on the next one. There's nothing so frustrating as laying down an entire sentence in dry-transfer letters, only to find out that the first word is spelt wrong. (We know, we've done it many times!)

ACTIVITY 20

Prepare your artwork slides, to the best of your ability, at this point.

Safe Storage - 2

Once you have prepared your artwork - STORE IT SAFELY. Don't leave it lying around the office, or on your desk top, file it away, flat, in a safe place. (We protect our master sets in large stiff envelopes, or between sheets of card and leave them in the suspended pockets of our filing cabinets).

Preparing to Photograph

Having prepared your artwork slides, what about real life visuals? There are a number of things you must plan before you take your camera out of its cupboard.

a. LOCATION How easy is it for you to get to your location? Are there a number of locations where you plan to photograph? To save travel time, plan to record all shots at each location in one visit rather than shoot your slides sequentially.

b. WEATHER Divide your slides into indoor and outdoor ones. Plan to shoot all outdoor ones under similar conditions.

c. SPECIAL REQUIREMENTS Make sure that the particular patient, doctor, nurse, or piece of equipment that you require is going to be available "on the day".

d. CONTINUITY You'll probably find yourself taking the slides over more than one day. If this is the case, watch out for clothing: your patient, nurse, doctor ideally should be wearing the same clothes throughout a tape-slide (*unless, of course, it is deliberately photographed over a long time-span*).

e. PERMISSION Is there a policy in your hospital over patients being photographed ? Are there any specific legal requirements you have to fulfil ?

f. PUBLICITY You will, of course, discuss what you are doing with everyone concerned, so that you get the best co-operation available.

g. DRY-RUN Go through the shooting procedure at least once, with no film in the camera. Sometimes what appeared a good idea on paper just won't work when you get behind a camera. You may want to tighten up some shots or loosen others.

95

E

EVALUATION STAGE 5

ACTIVITY 21

Use Workshop P 12 to go through your slides, planning your shooting sequence. By the time you have done this you will find out that you have already carried out EVALUATION STEP 5. This consisted of checking each piece of artwork and planning the real life photographs.

You have now completed Evaluation stage 5.

S6

Photographic Hints & Tips pps 98-110

Introduction

Just as the last section didn't set out to make an artist of you, this one doesn't intend to turn you into a photographer. Instead, it will help you make basic decisions about equipment, films and accessories.

WHAT DO YOU NEED?

A camera, lighting, film stock, copying stand with suitable lighting, release cable, light meter and lots of patience!

CHOOSING A CAMERA:

Practically, your choice lies between the "Instamatic", cartridge loading, type of camera, and the 35mm camera.

35mm cameras are the most practical ones for the job. They are light, easy to use, versatile, and available in a wide variety of types. In fact, there are so many available nowadays that your best course of action would be to refer to one of the specialist magazines (*What Camera?* for instance).

Basically your choice is between a *viewfinder* and a *single lens reflex* (frequently abbreviated to SLR) camera. The difference? When you look through the viewfinder of an SLR camera, what you see is the actual scene which will be recorded on the film. It is more accurate, and for this reason, we would recommend an SLR camera, as these do have definite advantages over other types of 35mm camera.

HOW MUCH?

Cost depends on the degree of quality you require, and the amount of use the camera will be put to.

If you want flexibility, choose a camera which will take a series of lenses (rather than a 'fixed lens' camera).

And think about your requirements first. For instance a Nikon camera will accept a special 'Micronikkor' lens which not only takes 'normal' photographs, but will also focus very close to a subject - stopping the need to buy special, close-up, accessories.

As a rough guide, the more you spend, the more you'll be able to do with your camera. Budget between £80 to £200, and look for a 35mm, single lens reflex camera, with an automatic exposure system, capable of accepting different lenses.

It's worth bearing in mind the (relative) low cost of hire if you are producing a lot of slides.

So if your money is limited - HIRE or arrange to BORROW your equipment.

LIGHTING

For indoor pictures a flash gun is invaluable. Don't buy cubes or bulbs - buy an electronic flash gun. These cost under £20. Be careful - don't waste money on a manual flashgun - for a few pounds more you can get a 'computerised' gun - which makes flash picture-taking simplicity itself. Reliable flashgun manufacturers are "Sunpak", "Braun", "Leitz".

STOCKING UP WITH FILM

You will need to use film stock which will yield positives, or transparencies. Any black-and-white negative film can be processed to give black-and-white slides, using *Johnsons Reversal Kit* but we don't recommend this. This does give good results with 'slow' films (see below), but the results are erratic.

If you are going to do a lot of black-and-white transparency work it's probably better in the long run to use the commercial *AGFA DIA-DIRECT* which you can buy through your local photo shop, in 36 exposure lengths. It is processed commercially, like colour film.

However, if you are only taking one or two black-and-white transparencies, it's probably cheaper in the long run to use colour stock.

If you are working with colour, there are many films available on the market, and your choice will be determined by your subject matter.

The *LOWER* the A.S.A. rating, the less versatile the film is (it will only copy with very bright light situations) and the *HIGHER* the A.S.A. rating, the more versatile the film.

- - a 50 A.S.A. film will only copy with subjects under limited light conditions.
- - a 200 A.S.A. film is more versatile, and will take slides under more varied light conditions.

However, you do get to a situation where you have to balance film speed requirements against picture quality - the higher the A.S.A rating, the more the final picture quality suffers.

- Generally speaking, you should not use a colour film of a higher rating than 125 A.S.A.
- If you do have to use a faster film, both Kodak and G.A.F. make specialist films.

NON-PHOTOGRAPHIC FILM

To put written information on a slide in a hurry, you could write on a piece of acetate and mount this up, or alternatively you could use Kodaks *Ektagraphic Write-on* slides.

FILM TYPES: NORMAL AND ARTIFICAL LIGHT FILMS

If you are photographing both artwork and visuals on the same film, you have two courses open to you. You can either use *normal* colour film stock (for everyday pictures) when taking the visuals, and use an 80B filter on the lens when you are photographing the artwork, or you can use *Type A (artifical lighting)* film - used for indoor lighting only - for shooting your artwork, and use an 80A filter on the camera lens when you are shooting visuals.

This applies if you are using the special lighting systems sold with copying stands. Alternatively, use daylight colour film, and electronic flash to provide your copystand lighting.

Reliable films to use are Kodachrome and Agfachrome, I prefer Agfa other people prefer Kodak film - we suppose it depends on the nature of your subject, and how important colour rendering accuracy is.

FILM TYPES: FILM SPEEDS AND LIGHTING NEEDS

All films you buy will have a *FILM SPEED* quoted on both the carton and the film. The speed is quoted in two ways - *DIN* and *A.S.A.*

The film speed is a numerical value, and refers to *HOW MUCH (or HOW LITTLE)* light the film can cope with. Generally speaking:

CHOOSING A FILM

When you choose a film, then you have two decisions to make:

● 1. Are the majority of your visuals to be taken in high-light conditions?

   - use normal film, up to 125 A.S.A

● 2. Are the majority of your visuals to be taken either in low-light or on a copying stand using artificial lighting?

   - use a fast film, with appropriate filter, or an artificial light film.

RELEASE CABLE

This will screw into the camera shutter release and is used to reduce camera movement (which would give a blurred picture) on releasing the shutter. I prefer the more expensive metal releases to the cloth-covered ones - they last longer.

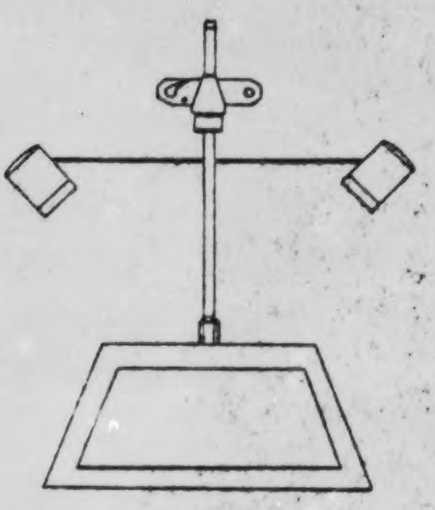
LIGHT METER

Unless your camera has TTL (Through-the-Lens Metering) facilities, a light meter is an absolute must. There are many types on the market - if you can pick up a secondhand Weston meter, it should serve you very reliably.

COPYING STAND

You can photograph artwork without one of these, but it does make the job very difficult.

A copying stand serves to hold your artwork flat in a plane parallel to the camera under even illumination.



Unfortunately, there are few copying stands on the market and the majority of these are poorly machined, insubstantial, and very expensive.

There is now one very good exception. Made by IFP (an Italian firm - see 'sources') it's a copystand with photofloods. Robust and cheap at around £110.

WHAT DO YOU DO?

For taking slides from artwork on a copying stand, set the artwork up on the baseboard so that it is square to the edges of the camera viewfinder.

It's a very good idea to test the accuracy of your viewfinder before starting on any photography - most viewfinders are not 100% accurate.

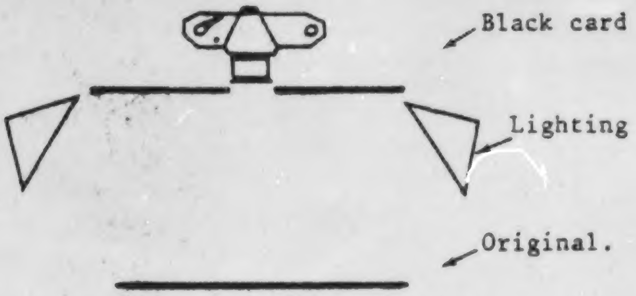
By looking obliquely through the viewfinder, you can often see that the actual picture area is slightly larger. If your camera has a control for setting the lens aperture, set it to between f8 and f16 (to give the best results) - and if you are using a specialist lens - read the instruction book - manufacturers very often recommend an optimum aperture setting for copying.

The artwork should be illuminated by setting up the lamps on your stand so that they are at an angle of 45° to the artwork.

You can test for uniformity of lighting by putting a slim object (e.g. cigarette packet) in the centre of the artwork, and adjusting the lights until the shadows cast on each side of it are symmetrical.

Especially with artwork, take care to avoid *hot spots* - areas of artwork which reflect more light than the rest. (In other words don't use very reflective surfaces in the preparation of your artwork).

A useful idea, to avoid reflections and hot spots, is to put a sheet of black card between the camera and the artwork, cutting a hole in it for the lens like this:



COPYRIGHT

This is a thorny problem. There cannot be many Schools who are not breaking the law. Read ancillary paper No.4: Geoff Crabb's *"The Law of Copyright"* - it may help you understand the position.

There is nothing to stop you using commercially bought slides in your own package as long as you do not market that package. Even so this is a sensitive area and probably best left well alone.

However, the 'borrowing' of visuals from textbooks is ILLEGAL. We recommend that you redraw any visual from a textbook, not so much because of copyright considerations, but more because DRAWINGS IN TEXTBOOKS VERY OFTEN DO NOT WORK WELL AS PROJECTED SLIDES.

When You Are Actually Photographing

How many shots should you take of each original - it is wise to take *at least TWO* shots of each original in your package. You won't then be too embarrassed if you lose a slide at a future date!

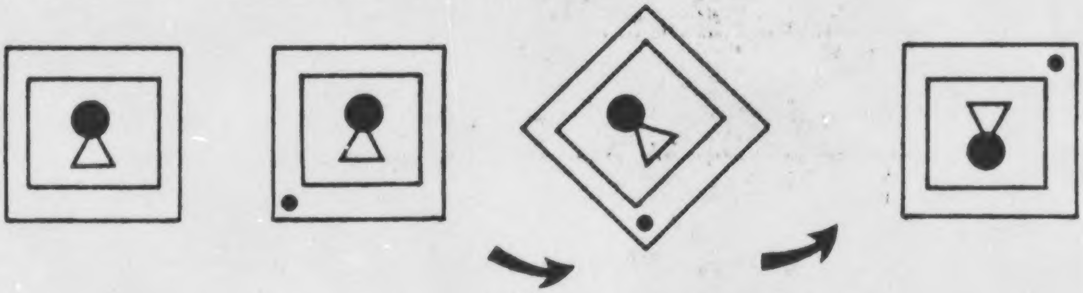
If you are making more than one package for validation purposes, it's still a good idea to take more copies of each slide than you need. It is much, much cheaper to make copies at this stage than to have them commercially duplicated later. (This, of course, refers to all your slides, not just the artwork ones).

Mounting

Kodak slides are returned in card mounts, other manufacturers in plastic ones. We would recommend mounting your MASTER set in glass slide-mounts, all others in plastic. So if you are using KODAK film:

- do you really want it back mounted? It's easier to remount from a strip of film than to go to the bother of taking the transparency out of the card mount and then remounting it? - it's a fiddly job!

If you are using Kodak film, and you do want your slides unmounted, then don't forget to cut the corner of the address label. When you mount your slides, make sure that you mount them so that the white side of the plastic mount faces you when you hold the slide to look at. It helps if you put a self-adhesive thumb spot (which may or may not carry the slide number) on the slide for easy loading into slide trays: Hold the slide so that the picture faces you. Put a thumb-spot in the bottom left corner. Now when you come to load up slide trays the slide is projection-ready when it is held between your right hand thumb and first finger.



This *is* the best way of avoiding those embarrassing "Oh look - the picture's back-to-front/upside down/the-wrong-way-round" moments.

EVALUATION STAGE 6

EDITING

When you have got your processed slides back from the laboratories, examine each slide individually, and as part of the series - on a light table, if possible. If the slides are all acceptable, if none of them needs re-shooting, then you are ready to prepare the commentary.

ACTIVITY 22

Shoot your slides,send them off, and edit them on their return.

Safe Storage - 3

Keep your set of master slides (mounted in glass) either in the plastic box they came back from the processors in, or in a hang-filing pocket - safely.

S7

Script Recording pps 112 - 122

The tape hasn't been made until now because you sometimes find you need to rewrite parts of the script in the light of your slide set.

ACTIVITY 24

Get your slide set, and, referring to it, run through your script one more time. Rewrite any parts, if this is necessary. Once you have done this, you're ready to proceed.

WHAT YOU NEED

Storyboard script, reel to reel recorder, microphone and stand, *standard play tape*, editing kit, and quiet surroundings.

GETTING READY TO MAKE THE MASTER TAPE

Always plan on making a master tape from which you can then dub off copies for class - or - individual use. (You should never let the master copy out of your sight - too much work will have gone into it). There seems to be a move to preparing master tapes on cassette. This is an unprofessional approach, which in the end will result in poor quality recordings.

Master tapes should always be made on reel to reel recorders, for the simple reason that reel tape is easier to edit than cassette.

We agree that for educational use there isn't a great deal of difference nowadays between reel and cassette performance - but cassette machines and tapes are certainly cheaper. Perhaps the best compromise to have is to have one good quality reel machine (making sure that you have the *correct leads, correctly labelled*) to enable you to dub copies off with.

The cost of having cassettes made at a commercial studio at high speed is fairly low for runs over ten.

So, for master tapes, use standard play open reel tape, recording at 19 cm per sec.

Length m/ft.		*19 c.p.s.*	*9.5 c.p.s.*
45	150	3.75 min	7.5 min
65	210	5.5 min	11 min
90	300	7.5 min	15 min
135	450	11 min	22 min
180	600	15 min	30 min
270	900	22 min	45 min
360	1200	30 min	60 min
540	1800	45 min	90 min
730	2400	60 min	120 min
1080	3600	90 min	180 min
1280	4200	107.5 min	215 min

If you must record direct onto cassette, *Transaid* is a good source of cassettes which come in a variety of time-lengths.

Generally speaking, there are three kinds of preparation which are helpful.

1. Script preparation

The script should be carefully prepared and pre-tested (we've done this), and then typed with a 3 line spacing, leaving wide margins at the top, bottom, and sides of the pages.

This gives sufficient space for cue and emphasis markings, and makes reading easier.

Three-line spacing?

Leave this much space

between the lines (if

you can afford the paper!

It is VERY IMPORTANT not to staple your script together or have it in a loose-leaf file: keep the pages separate (see p 116).

ACTIVITY 25

Have your script typed out, onto A4 paper, as suggested in the above.

2. Physical Preparation

You should choose your recording room very carefully - one with good acoustic properties and as far as possible away from extraneous noise. Curtains and carpeting will help to deaden these noises, and also any echoes within the room itself.

A simple way of finding out if the room is suitable for taping in is this:

- Clap your hands and listen for the echo.

- If it is too short - the room is too dead.
- If it is too long - the room is too resonant.

3. Choosing the right time

You should make sure that the time you actually set aside for recording is one when there is absolutely no chance of your being interrupted by person or telephone.

You should allow roughly THREE TIMES the length of the script for preparation.

To get an idea of the pacing necessary read through the script at least two or three times, *aloud*, recording the last effort. Listen to the playback and note cues and emphasis points on your script. This will also give you practice in listening to your own voice, and is good for confidence-building.

Remember that the ideal you are trying to achieve is a technically well-balanced recording where the voice flows in a natural, conversational way.

It is important to avoid a pace which is either too slow or too fast. I find it useful to talk very clearly and slightly slower than at my normal speed - but you will have to experiment to find the pace suitable for you and your students. To avoid rustle due to page-turning when recording *either* lay your script pages out across a desk *or* enclose each in a transparent plastic wallet *or* let each page 'drift' to the floor when you have read through it.

ACTIVITY 26

Get out your machine and do this now, so that you end up with your script cue-marked. If you are not sure what we mean by pacing and emphasising - tune in to a good radio programme (a Radio 4 discussion, for example), and listen carefully.

Settling Down to Make the Tape

A HELPING HAND?

It's a good idea to have some help when you are making a tape - having a helper means that you can concentrate on what you are saying without worrying about how to operate the tape-recorder controls.

ARE YOU 'PROFESSIONAL' ENOUGH?

You may wonder if it is worth while paying *professionals* to record the tape instead of you. We would very strongly recommend that you do it yourself. Apart from the obvious expense of employing someone else, research evidence available to us does suggest that a tape prepared by a familiar, recognisable voice (no matter how 'amateur') is more effective than one made by a non-familiar 'professional'.

- And don't forget - to add interest, a very effective technique is to use more than one voice on the tape as in an interview or a question-and-answer situation.

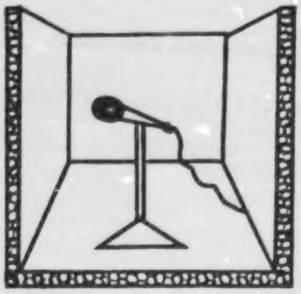
SETTING THINGS UP

Your machine should be set up in a comfortable room, preferably with the microphone on a separate table (to avoid picking up noise from the motor). The microphone should be supported at mouth level, either on a stand or taped to a suitable support, about two feet away from you.

TWO USEFUL TIPS HERE

● 1. Putting a cardboard box over the machine reduces motor noise.

● 2. To avoid echo in a 'hard' room, get a large cardboard box and line it with polystyrene ceiling tiles: put the microphone and stand inside, and tape from the normal speaking distance.



You will have to find your optimum distance by trial and error - too far away and you will *under-record* (hissy, noisy background to the tape), too near and you will *over-record* (hard sibilants - Ss and Bs prominent).

Try different positions of the microphone and the recording volume control until you are satisfied with the result, and then mark the optimum level on the recording volume control. (You can then use this to fade-up your volume level on recording). You could also try the effects of moving the furniture around, closing the curtains, etc. on the quality of the recording.

STUDENT RESPONSE

Assuming that at some point in your script you are asking your students to make a response of some sort, you will have to remember to put an instruction on the tape. After all, you won't want the tape left playing while your students are writing notes.
Remember to instruct them - something like *"when you are ready, please turn off, and turn on again when you have completed the task on this slide....."*

It is very important to leave time for students to respond to instructions like this; pauses are often useful to give them time to assimilate new information.

SLIDE CHANGES

This can be a problem unless you are using equipment which allows automatic synchronisation. We tend NOT to use pulsed tapes because of the problems of equipment compatibility.

You could use an electronic or mechanical noise (such as a door-bell, or wooden ruler being tapped). This though is very disturbing. It's worth getting hold of a buzzer or some form of tone (e.g. a "stylaphone"). You may prefer to announce *"next slide please"* on the tape. It's very useful to actually identify the slide - *"next slide - number 15 - please"* because this does give the user a chance to check that she is looking at the right slide.

Don't forget to allow your audience enough time to physically change to the next slide. Do this by timing how long it taked you to do this - and allow a second or two longer each time in your recording.

MUSIC ?

Very nice if you decide to have introductory background music on the tape. But beware - you are almost certainly infringing copyright. See Geoff Crabbs article. If you do want music you can obtain, at fairly reasonable charge, specialist records from Boosey & Hawkes, 295 Regent St, London W1R 8JH. And it is worth contacting the Mechanical Copyright Protection Society - see p.136.

Alternatively the music section of your local music library may hold suitable BBC or other sound effects records you can make use of.

Alternative Ways of Making The Tape

Basically, you have two choices - to record the tape straight off, leaving in the pauses, mistakes, etc., and edit them out afterwards, or to stop each time you make a mistake, and re-record in sections.

We favour the first method - it gives a much more professional result.

Whichever way you do choose, you should run a new tape through the recorder at speed once, and rewind, before starting your recording.

When you are making the tape, record about a minute or so of ambient silence in case you have to lengthen any of your pauses when you come to edit. (The alternative, for absolutely silent long pauses is to edit in unrecorded tape, or leader tape).

ACTIVITY 27

Make your master tape. If you need to edit it, buy an editing kit (see source list) and follow its instructions. Make a cassette copy by linking your cassette machine to the reel recorder with the appropriate lead.

EVALUATION STAGE 7

Run through your cassette copy, listening very carefully. If the sound quality is acceptable (i.e. no 'hiccoughs', pauses, rustling papers or extraneous noises); if nothing is missing which should be there - go on to the next section.

S8

Putting It Together pps 124 - 128

By now you've almost finished. The slides have been made and mounted, the cassette copies are available - all you've got to do is to put them together.

How? Well, this does depend on how you want to store them.

ACTIVITY 28

Read Ancillary Paper No. 5: "Media Storage" and look at the AVLS catalogue provided. In the light of your own School's experiences, decide on the best method of storage for YOU.

Synchronisation Systems or Mechanical Means ?

There are two ways you can arrange to change your slides:

- Mechanically, or by
- Electronic means

We recommend you use the former - by putting audible cues on your audio track requesting the student/operator to change to the next slide. (see page 120). This has the advantage of cheapness, simplicity, and at least a very minimal amount of active student involvement.

Electronic synchronisation systems that automatically present tape-slides have been a growth area in the industry over the recent years. And with current technical developments, tape-slides can now be used in very complex, creative, and flexible ways. For example, large multi-screen presentations (including an infinite variety of visual effects) are now very common sights at commercial exhibitions and displays.

But sadly, on the more basic educational level with which we must concern ourselves, the overwhelming range of the new technology inhibits the prospective first-time user. Automatic presentation can be very useful. Using more than one projector, it can be an effective way of establishing visual continuity - and it can add almost-animation effects to graphic sequences.

WHAT SYSTEMS ARE AVAILABLE?

At the lower end of the commercial market there are three basic systems available.

SINGLE-SCREEN: No dissolve (A 'dissolve' is what you get with 2 projectors, one slide 'melting' into the next).

e.g. Philips cassette recorder, synchroniser unit and projector: price for synchronisation unit and projector - c. £120 **

SINGLE-SCREEN: No dissolve

Desk-top, back-projection units with built-in cassette machines. e.g. Bell & Howell Model 797. price around £420

SINGLE-SCREEN: Dissolve. (needs two projectors)

e.g. Wollensak 2551 cassette recorder with built-in synchronisation/dissolve unit. price around £450.

The advantages and disadvantages of electronic synchronisation are summarised on the next page.

** At the time of going to press (November, 1980) there is some doubt to the continuing availability of the Philips unit.

ADVANTAGES	DISADVANTAGES
Continuity of presentation	If (or when) the system breaks down, you frequently can't screen the tape-slide
Programme can be put together as an overall concept	Individual use of tape-slide may demand considerable operating skills
No interruption for slide-change	Final format is rigid
Dissolve effects aid visual presentation	Final format is unable to be flexible
Graphic effects can be produced	Restricts the way the tape-slide can be used
Desk-top projection unit useful for individual study situations - not a lot of pieces of equipment to battle with	Cost
Tape-slides can be cheaply transferred to video-cassettes for easy distribution and portability.	

E

It is important to analyse whether electronic synchronisation offers any real advantages to your presentation requirements. If it does then it is worthwhile producing an alternative version so that your tape-slide can be used both on an electronic synchronisation system and on a manual one.

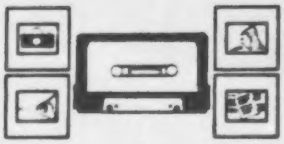
Consideration of whether you need this method of slide-changing or not should be balanced by an objective assessment of its advantages in terms of real effectiveness for your own teaching requirements. We repeat - for most schools of nursing, electronic synchronisation systems can serve only as cosmetic decorations.

ACTIVITY 29

Put your tape and slides together into a package, using a synchronised cuing system if you must.

EVALUATION STAGE 8

Play through the tape slide once more. Note how easy it is to set up, play through, and put away.



S9

The Package in Use pps 130-134

Integration

The most superlative, professional package, slickly presented, is, of course, useless unless it can be integrated into the teaching curriculum.

This will involve commitment on the part of the staff to using the package, a belief in the effectivness of it, and a willingness to introduce it to the student body.

While many students may already have been exposed to this method of teaching, some may not, or may resent what at first sight might appear to them to be an impersonal and remote method of teaching.

Whatever audio-visual research may or may not have said, one thing is certain - it is the attitude of the teacher to the mode of learning that determines how it is received by the students.

ACTIVITY 30

Use Workbook P13 to record the steps you have taken to ensure your package's efficient reception and use.

Methods of Use

ACTIVITY 31

Read Ancillary Paper No. 6: "Choosing & Using Tape-Slide Packages".

EVALUATION STAGE 9

ACTIVITY 32

Actually use your package with a group of students. Establish whether or not it has met its objectives.

Budgeting - Time and Finance

TIME

How much time do you need to set aside for the planning, preparation and production of a tape-slide package?
Of course it does depend on your experience and whether or not you have help. Let's suppose it's all up to you. Bearing in mind the need to let ideas mature, we reckon on allowing at least 3 months per tape-slide (working, perhaps, 4 hours a week). This would include the initial analysis. So you can see the need to plan well in advance. And the way in which you organise your time is also important - we have found that blocks of time of less than 3 hours are - practically - useless.

FINANCE

Here are some (April, 1980) costs

2 x 36 exposure, process paid Kodak film	£9 .00
Postage	£0 .24
2 x Boxes Ge Pe glass slides (40) for masters	£4 .40
1 Box Ge plastic slide mounts (100)	£2 .55
Art Materials	£6 .00
Open reel tape	£3 .00
Cassettes	£2 .00

As you can see, the cost of a simple, 36 odd slide, 20-30 minute Tape Slide is going to be around £28 - not counting your labour.

REVIEW

WHAT YOU NEED TO START TAPE-SLIDING

- TIME, COFFEE AND PATIENCE
- AN IDEA
- PENCIL, RUBBER, LOTS OF SCRAP PAPER
- COLLEAGUES, STUDENTS, FRIENDS YOU CAN BOUNCE IDEAS OFF
- STORYBOARD FORMS
- ART MATERIALS
- A TYPEWRITER
- SAFE STORAGE SYSTEM FOR ORIGINALS
- CAMERA, FILM, RELEASE CABLE, LIGHTING, COPYSTAND, SLIDE MOUNTS, SELF ADHESIVE DOTS
- TAPE RECORDER, MICROPHONE, OPEN REEL TAPE, CASSETTE RECORDER, LEADS
- STORAGE SYSTEM FOR COPIES OF TAPE SLIDES

Congratulations! by now you should have made a first-class tape-slide package. If you do have any queries do contact us.

Ian Townsend

John Parker

S10

Source List & Bibliography pps 136 - 142

Source List

Page 83: *Uchida Cutting Mat:*
Geliot Whitman Ltd, Herschell Rd, London SE23 1EQ.

Page 104: *I.F.P. Copying Rostrum:*

D. Mallinson AV Ltd, 31 Hampton Rd, Twickenham, Mddx.

George Elliot & Sons Ltd, Worcester House, Vintners Place,
London EC4V 3HH.

Page 113: *Variable-length Cassettes.*

Transaid Ltd, Francis Gregory & Sons, Spur Rd, Feltham, Mddx. TW14 OS.

Page 121: *Copyright Clearance Licenses:*
M.C.P.S. Elgar House, 380 Streatham Rd, London SW16.

Editing Kits: e.g. 'Bib', 'B.A.S.F.'
From Dixons, or any good hi-fi/radio shop.

Bibliography

ALDRED J (1976) "Sound, its Recording and Reproduction" AUDIO VISUAL. June pp 51-52

ANDERSON S et al (1975) "Preparing for Examinations: tape-slide instruction" EDUCATION IN CHEMISTRY. July No 12 pp 116-118

ARNOLD P (1976) "New System Includes Nursing Audiovisuals" AMERICAN NURSE Vol 8 No 13 1/10/76 p 11

ATKINS R J (1974) "The Use of Slides: Practical Answers to Key Questions" VISUAL EDUCATION Jan pp 27-30

BARRETT K G (1973) "The Slide-Tape Presentation" VISUAL EDUCATION Feb pp 30-34

BARRETT K (1977) "Guidelines to the Preparation of a Slide-Tape Programme" VISUAL EDUCATION June p 21

BEYREMK (1978) "New Aids for Instruction" J. SCHOOL HEALTH Vol 48 No 3 Mar p 186

BRAIN E A & BIDWELL C M (1979) "How To Do It: Construct a Programme" BRITISH MEDICAL JOURNAL 10/2/79 pp 394-396

BRAMBLING B (1977) "D.I.Y. Programmes - Effective Tape-slide"
AUDIO VISUAL July pp 50-52

BRAMBLING B (1977) "D.I.Y. Slide-Tape:2 Writing Commentaries"
AUDIO VISUAL Aug pp 59-61

BRAMBLING B (1977) "D.I.Y. Slide-Tape:3 Organising Photography"
AUDIO VISUAL Sept pp 53-57

BRAMBLING B (1977) "D.I.Y. Audio-Visual: Editing"
AUDIO VISUAL Oct pp 86-89

BRAMBLING B (1977) "Effective Slide-Tape - Facing the Music"
AUDIO VISUAL Nov pp 71-74

BRIANT N (1974) "When You Make Your Own Tape"
CANADIAN NURSE Vol 70 No 42 Dec pp 38-39

BRITISH STANDARDS INSTITUTION (1977) "Preparation of Artwork for Lecture Slides"
BRITISH STANDARDS INSTITUTION 2 Park St. London

BRYLSKI E et al (1972) "Audiovisuals Made to Order"
NURSING OUTLOOK No 20 June pp 385-387

DORLING J
MORLEY D (1979) "Where do Those Slides Go?"
FOUNDATION FOR TEACHING AIDS AT LOW COST
Institute of Child Health, 30 Guildford Street, London WC1N 1EH

HENRICKS M J (1971) "Audio Slides Streamline Interviews"
CANADIAN NURSE No 67 Aug pp 35-36

HENRICKS M J (1974) "Use of Slide-Tape Series in a General Hospital Setting"
J. BIOLOGICAL PHOTOGRAPHIC ASSOCIATION
No 42 pp 64-65

JONES Hazel C (1976) "The Value of Self-Test Items in Tape-Slide Instruction"
MEDICAL EDUCATION Vol 10 No 4 July pp 279-283

LEWIS J (1978) "Making Tape-Slide Programmes"
NURSING TIMES Vol 74 20/4/78 pp 673-675

MACKAY J (1977) "The Use of Tape-Slide Sets at the College of Applied Health Sciences, Madang, Papua, New Guinea"
MEDICAL & BIOLOGICAL ILLUSTRATION
No 27 pp 81-82

MONKS J (1978) "Economical Slide Making"
NURSING TIMES Vol 74 17/8/78 p 1381

HENRICKS M J (1971) "Audio Slides Streamline Interviews" CANADIAN NURSE No 67 Aug pp 35-36

HENRICKS M J (1974) "Use of Slide-Tape Series in a General Hospital Setting" J. BIOLOGICAL PHOTOGRAPHIC ASSOCIATION No 42 pp 64-65

JONES Hazel C (1976) "The Value of Self-Test Items in Tape-Slide Instruction" MEDICAL EDUCATION Vol 10 No 4 July pp 279-283

LEWIS J (1978) "Making Tape-Slide Programmes" NURSING TIMES Vol 74 20/4/78 pp 673-675

MACKAY J (1977) "The Use of Tape-Slide Sets at the College of Applied Health Sciences, Madang, Papua, New Guinea" MEDICAL & BIOLOGICAL ILLUSTRATION No 27 pp 81-82

MONKS J (1978) "Economical Slide Making" NURSING TIMES Vol 74 17/8/78 p 1381

OWENS R D & COLVEDIN G O (1977) "Effects of Varied Temporal Visual Overlapping in Multi-Image Tape-Slide Presentations" PROGRAMMED LEARNING & EDUCATIONAL TECHNOLOGY Vol 14 No 1 pp 33-42

PEARMAN R (1977) "Brambling on Slide/Tape: A Scriptwriters Retort" AUDIO VISUAL Dec pp 78-79

SINCLAIR J (1973) "Slides without Slips - or how to get it all taped" EDUCATION IN THE NORTH No 10 pp 89-92

SMITH A P (1971) "Audio-Visual Teaching in Nurse Education" NURSING TIMES Vol 67 pp 736-737

SPENCER M (1979) "Did the Student Learn? A Comparison of Different Study Methods" NURSING TIMES Vol 75 4/1/79 pp 35-37

THOMSON W (1978) "Health Education 3 - Using the Media" NURSING TIMES Vol 74 No 39 28/9/78 pp 1614-1615

TOWNSEND I (1973) "Tape-Film and Slide: Teaching Manipulative Skills in Science" VISUAL EDUCATION March pp 29-35

TOWNSEND I	(1976)	"Producing a Tape-Slide Package: The Initial Analysis" VISUAL EDUCATION Feb pp 17-19
TOWNSEND I	(1976)	"Producing a Tape-Slide Package: The Visual Component" VISUAL EDUCATION Mar pp 23-27
TOWNSEND I	(1976)	"Producing a Tape-Slide Package: The Final Stages" VISUAL EDUCATION Apr pp 23-24
TOWNSEND I	(1978)	"Choosing and Using Tape-Slide Packages" NURSING TIMES Vol 74 No 16 20/4/78 pp 675-676
WHITAKER C	(1975)	"Snapaslide, Scancept and Skilgram - Some Visual Ways of Integrating University Courses" BRITISH J. EDUCATIONAL TECHNOLOGY Vol 2 No 6 May pp 35-46
WILLARD C	(1977)	"Innovative Instructional Patterns: How to Prepare a Slide Program" N.L.N. PUBLICATION (16-1687)
WILLIAMS A R	(1977)	"Visual Aids for Nurses" NURSING MIRROR No 145 28/7/77 pp 13-16

Books on Writing Objectives:

BOSTON R E	(1972)	"How to Write and Use Performace Objectives" Vols. 1 - 4. Educational Technology Publications, Englewood Cliffs, N.J.
MAGER R F	(1961)	"Preparing Objectives for Programmed Instruction". Fearon Press, San Francisco.
MAGER R F	(1962)	"Preparing Instructional Objectives". Fearon Press.
MAGER R F BEACH K M	(1967)	"Developing Vocation al Instruction". Fearon Press, Palo Alto, California.
POPHAM W J BAKER E L	(1970)	"Establishing Instructional Goals". Prentice-Hall Inc.

LATE IDEAS

Here are some tips given to us during the evaluation field-trial. We're including them here because the cost and labour of re-editing this Guide would mean a publication some 6 months later than now. We hope that this will not spoil your enjoyment of the package.

Reference - Page 25.

Bearing in mind that what you are about to draft is to be HEARD (not read) you could try RECORDING your verbal draft first. In other words: look at your first objective, bear the points on p 25 in mind, then pick up your microphone and record (instead of writing down) your draft. Do this for objectives 2 and 3 as well. When you replay the tape any errors of syntax, comprehension etc. should be obvious.

When you are happy with the first draft, go on to Activity 5 at the bottom of the page.

(Thank-You Moira Burnett, Tutor at West Herts School of Nursing).

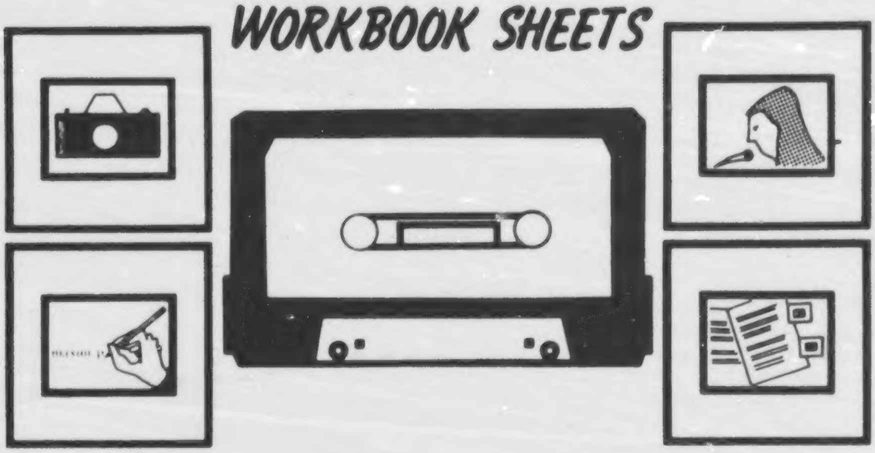
We would like to thank all the people who helped us during the field-trial. You are too many to list here - but you're not forgotten. A special mention must be made of Pat Noble, Lecturer at Garnett College of Education, who gave us much sound advice and help.

COPYRIGHT of material presented in this Guide lies with IAN TOWNSEND and JOHN PARKER 1980. In any reference to it, please quote the following:

"A Guide to Producing Tape-Slide Packages: Townsend & Parker, 1980".

A Guide To Producing Tape-Slide Packages:

WORKBOOK SHEETS



Ian Townsend and John Parker

**Use these sheets as MASTERS, to make copies from.
Do NOT write on them.**

Activity 1 - Guide, p2.

Tape-Slide Package Production.

Draft Number: 1 2 3 4 5 Date: / /198 Initiator:

TOPIC:

TITLE:

Is this material available from any other source ? Yes ☐ No ☐

If it is: have you previewed it ? Yes ☐ No ☐

Do you still want to make this package yourself ? Yes ☐ No ☐

Ideas that you have got from commercial packages:

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Activity 2 - Guide, p5.

PACKAGE TITLE:

1st Draft Objectives:

At the end of this unit of instruction, the student will be able to:-

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

Broad Aims of the Package:

Activity 3 - Guide, p7.

PACKAGE TITLE:

EVALUATION STAGE 1: Acceptability of the Objectives.

OBJECTIVE	CONTENT IS SATISFACTORY ?			CONTENT IS ACCURATE ?			CONTENT IS COMPREHENSIBLE ?			CONTENT IN LOGICAL ORDER ?		
	1	2	3	1	2	3	1	2	3	1	2	3
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

1 = Yourself, 2 = A Colleague, 3 = A Student.

What is your OVERALL impression of these objectives ?

Now, looking at your objectives, pick out those which are by entering their numbers (1,2,3,4 etc) in the appropriate column.

Most Important	Nice to Have	Peripheral	Long-term

Activity 4-Guide, p19.

PACKAGE TITLE:

Degree of Participation Needed.

OBJECTIVE	IS A RESPONSE NEEDED ?		OVERT ?	COVERT ?	EXAMPLE
	Yes	NO			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Are there any special requirements you need note at this point ?

Activity 5 - Guide, p 25.

PACKAGE TITLE:

1st Draft Script:

OBJECTIVE	1st draft, Verbal Script	LINK ?

Activity 8 - Guide, p 31.

PACKAGE TITLE:

EVALUATION STAGE 2: Script Feedback.

1

LANGUAGE	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PHRASING	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CONTENT	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
LINKING FLOW	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

2

LANGUAGE	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PHRASING	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CONTENT	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
LINKING FLOW	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

3

LANGUAGE	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PHRASING	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CONTENT	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
LINKING FLOW	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

4

LANGUAGE	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PHRASING	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
CONTENT	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
LINKING FLOW	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5 = needs no improvement. 4 = good, improve only if you have time. 3 = acceptable, but could be polished if you have the time. 2 = in need of improvement. 1 = unacceptable: definitely needs improving.

PACKAGE TITLE:

Tape-Slide Observations.

SLIDE	Position of Elements	Successive Colour Contrast	Simultaneous Colour Contrast	Photographic Style	Artwork	Typeface			
						Legible ?	Weight ?	Style ?	Size ?

Activity 11 - Guide, p46.

Title – **Initiator–** **Draft–** **Date –** **Page -**

Comment

Comment

You may like to make several copies of this form.

Activity 15 - Guide, p 62.

PACKAGE TITLE:

EVALUATION STAGE 3: The Visual Element.

VISUAL	COMMENT	VISUAL	COMMENT
1		16	
2		17	
3		18	
4		19	
5		20	
6		21	
7		22	
8		23	
9		24	
10		25	
11		26	
12		27	
13		28	
14		29	
15		30	

Activity 17 - Guide, p71.

PACKAGE TITLE:

Looking At Lettering.

Item	T/S 1		T/S 2	
	Yes	No	Yes	No
A limited number of typestyles used ?				
Is lettering consistent throughout the package ?				
Are the slides balanced in content (as opposed to being over-imaged) ?				
Serif faces used ?				
Sans-Serif Faces used ?				
Mixture of both serif and sans-serif used ?				
Is typeweight adequate for projection ?				
If variations in weight are used, are they used appropriately ?				
Have colored backgrounds been chosen to support legibility ?				
Is lettering all UPPER-CASE ?				
Is lettering all lower case ?				
Has a mixture of UPPER and Lower case been used ?				
Is the style consistent with the theme of the tape-slide ?				
Is the lettering chosen too big for the slides ?				
Is the lettering chosen too small for the slides ?				

What is your overall impression of the way the lettering has been used in these two tape-slides ?

Tape-Slide 1:

Tape-Slide 2:

Activity 18 - Guide, p 75.

PACKAGE TITLE:

Lettering Styles related to Nursing Content:

fghijklmnopqrstuvw
xyz 1234567890
&?!ß£$(;)«»

CABLE LIGHT

ABCDEFGHIJKLMNOPQRS
TUVWXYZ abcdefghijklm
nopqrstuvwxyz 123456
7890&?!ß£$(;)«»(-)

COMPACTA LIGHT

ijklmnopqrstuv
wxyz123456789
0&?!£$ß(;)»«~

DIN 17

opqrst
uvwxyz
ß«»;

EUROSTILE MEDIUM
EXTENDED

ABCDEFGHIJ
KLMNOPQRS
TUVWXYZ a
bcdefghijklm
nopqrstuvw
xyz 12345678
90&?!ß£$(;)»«~

FOLIO MEDIUM EXTENDED

ABCDEFGHIJ
KLMNOPQRS
TUVWXYZ ab
cdefghijklmnop
qrstuvwxyz123
4567890&?!ß£$
;»«~

FOLIO LIGHT

FUTURA MEDIUM

ABCDEFGHIJKL
MNOPQRSTUV
WXYZ abcdefghi
jklmnopqrstuvwx
yz1234567890&
?!ß£$(;)¯¯˜¨˚«»`´ˆ

ABCDEFG
HIJKLMNO
PQRSTUV
WXYZ 123
4567890&
?!£$();¨ˆ˜`´˚˚»«

MICROGRAMMA BOLD EXTENDED

ABCDEFGHIJK
LMNOPQRST
UVWXYZabcd
efghijklmnopq
rstuvwxyz1234
567890&?!ß£$
(;)¯¨˜¯`´«»˚˚ˆ

PUMP

GILL SANS

ABCDEFGHIJK
LMNOPQRST
UVWXYZ abc
defghijklmnopq
rstuvwxyz1234

OPTIMA

ABCDEFGHIJKL
MNOPQRSTUV
WXYZ abcdefg
hijklmnopqrstuv
wxyz 12345678
90&?!ß£$(;)ˆ˚¸¯¯¨˜«»

MNOPQRSTUV
WXYZ abcdefg
hijklmnopqrstuv
wxyz123456789
0&&?!ß£$(;)|˜¨˚˚`´ˆ»»««|

UNIVERS 67

Activity 21 - Guide, p 95.

PACKAGE TITLE:

EVALUATION STAGE 5: PREPARING THE SHOOTING SEQUENCE.

SLIDE	ARTWORK	LOCATION						PERMISSION ?	ANY SPECIAL REQUIREMENT OR COMMENT ?
		INDOOR			OUTDOOR				
		1	2	3	1	2	3		

Use this to plan your shooting sequence, so that you can then shoot your visuals quickly, easily, and efficiently.

LOCATION KEY: INDOOR (1) (2) (3)
OUTDOOR (1) (2) (3)

YOU SHOULD MAKE A NUMBER OF COPIES OF THIS FORM.

Activity 30 - Guide, p 95.

PACKAGE TITLE:

Steps I have taken to ensure the efficient reception and use of my package in the classroom or private study environment.

A Guide To Producing Tape-Slide Packages:
ANCILLARY READING

Ian Townsend and John Parker

Producing a tape-slide package—the initial analysis

1

Ian Townsend, NHS Learning Resources Unit, Sheffield

OVER the past decade, there has been a growing worldwide interest in the application of alternative training systems within all levels of education from the nursery to the university, perhaps culminating in the present time in the achievements of the Open University. This systematic application of the principles of a technology of education has resulted in the development of a wide range of mediated learning packages, of which one of the most flexible is the tape-slide.

It is the aim of this article to investigate the place of such a package within a given area of tertiary education—nurse education, and to indicate the preliminary, vital stages in the production of such a unit. Although written with the nurse tutor in mind, the principles involved are of course adaptable across the whole range of educational experience. Future articles will deal with the physical preparation and evaluation of the unit.

What is a tape-slide package?

Simply, a vehicle for presenting information relying on visuals (in the form of 35 mm slides) allied to a descriptive audio tape, and perhaps other supportive material—eg handouts, models, etc.

It can be used to replace part or all of a conventional lecture, or as an alternative to it. Tape-slides may also be incorporated into a teaching system, or be used as extraneous enrichment material. Such packages may be used to teach fact, attitude or skill to large groups, small groups, or individuals.

The value of such a package lies in the organised way in which it has been developed to maximise student learning: 'The classroom is not a battleground: lecturing is not an occasion for requiring the student to be deucedly clever in detecting the relevant and organising the disorganised: it must not be the occasion for so much writing that only listening—but no hearing—takes place.'(1)

Why use tape-slide packages?

The knowledge explosion is a documented, recognised fact.(2) Whilst the amount of knowledge to be taught increases almost exponentially, methods of organising and presenting it, and the time available to do this, have not shown a parallel growth.

Research shows that learning may be more effective if information is presented by more than one channel—ie by other than purely auditory, or purely visual means.(3, 4) Apart from learning taking place due to novelty/motivational effects, it has been suggested that incorporating visual material into a teaching programme in this way utilises the cuing ability of visual material.(5) Commercially and home-produced items have shown that this format can effectively be used to teach facts, concepts, psychomotor skills and attitudes.

In an increasingly severe economic climate, what are at present referred to as 'ancillary' items of equipment must need be inexpensive, both simple and reliable to use, and consume equally inexpensive materials. Ideally they should be already in the possession of a school. The slide projector and the audio recorder are familiar items within schools, and their marriage into the tape-slide format poses few problems to staff or administrators.

It may perhaps be argued that the incorporation of such tape-slide packages into the learning system will place an unbearable burden on the staff who have to produce and administer them. This may be true, but only if the rationale underlying their use is rejected, or only partially accepted. Such aids to learning should only be produced/used by staff who concede the benefits of such an approach.

There is certainly nothing magical about the making of a tape-slide package—it is easy to produce—there are no complex skills to learn—and such skills as are necessary can be self-taught. Whilst it is true to say that more professional results are produced with the more expensive equipment available, educationally-acceptable results can be produced with a minimum of equipment and skill.

To sum up then, producing a tape-slide package *is* easy. Using such a package does seem to help students (especially the slow learners) learn—but—a word or two of warning:

'No amount of first-hand or simulated experiences can ensure that learning will take place if the teacher, or students or both lack the interest, the motivation and the right attitudes towards the subject matter. Further, the passive student, facing a boring teacher, will remain just as passive facing boring or irrelevant films, filmstrips, tv programmes or programmed texts. In spite of the inherent presentational attributes of audio-visual material and their potential contributions to education, their full value will not be realised as long as they are used simply as additions *to,* and not incorporated *within* the educational process.'(6)

From this, you can see that there is a group of questions that you should bear in mind when analysing subject matter for tape-slides—WHEN, WHERE and HOW do you decide on making a tape-slide?

ANALYSING THE SUBJECT MATTER

What You Need:	Plenty of scrap paper, pencil, rubber and stimulants (coffee, or otherwise!)
What You Do:	Fig 1 summarises the process.

Figure 1: The analytical process

STAGE 1 STATE THE PROBLEM

⇩

STAGE 2 ANALYSE IT

⇩

STAGE 3 STRUCTURE THE ANALYSIS

⇩

STAGE 4 ESTABLISH THE OBJECTIVES

⇩

STAGE 5 DECIDE WHETHER TAPE/SLIDE IS AN APPROPRIATE PRESENTATIONAL MEDIUM

Stage 1—State the problem

It is axiomatic that before you can start educational treatment, you should have available a diagnosis of your problem. Stages 1-5 in the above diagram provide a checklist for doing this.

In the first instance, you are interested in stating the problem in wide, general terms. It is advantageous to state the problem in terms of what your *students* will be able to *do* at the end of the instruction. It is further useful to define your students in terms of age, sex, IQ, etc.

In this way, part of the aim *'Teach Heart Structure'* may be expanded to *'Teach 25 female students, age range 18-24, IQ range 100-120, to verbally identify (on an unlabelled chart) from memory heart structures marked on the attached diagram, and to achieve a score of not less than 75 per cent'.* Similarly, part of the aim *'Teach Nervous System'* could be expanded to *'Teach 30 mixed students, age range*

18-35, IQ range 98-120, to discriminate correctly between afferent and efferent neurons, to identify four different types of neurone from sketches, and to distinguish between the terms central and peripheral, autonomous and . . . etc'.

I suggest that this process (making explicit factors which to this point may have been implicit) will be an extremely valuable exercise in the analysis of the subject matter.

Stage 2—Analyse the problem

I have said above that in this initial analysis for a tape-slide package it is useful to think in terms of what the students will be able to do on completion of the package. This means that attention has to be paid to the precise meaning of verbs—'teach', 'understand', 'know' are far too vague for our purpose here. Figs 2 and 3 suggest more appropriate descriptive terms.

This analysis will then form the basis of what is expected of your students, and will serve to define what they should have learnt—it acts as a test (of both the teacher, the package and the learner).

How then to go about analysing your subject matter in detail? First of all remember two things: you are going to express *how* the student is expected to *use* the knowledge you intend to put over, and your package should not take more than 20-30 minutes for maximum learning efficiency. You may find that your subject matter needs more than one tape-slide package to do it justice.

Fig. 2: Some descriptive verbs, for 'Knowing' subject-matter

CLASS	ASSOCIATED ACTION VERBS		
Knowledge	define state list name	write recall recognise label	underline select reproduce measure
Comprehension	identify justify select indicate	illustrate represent name formulate	explain judge contrast classify
Application	predict select assess explain	choose find show demonstrate	construct compute use perform
Analysis	analyse identify conclude differentiate	select separate compare contrast	justify resolve break down criticise
Synthesis	combine restate summarise précis	argue discuss organise derive	select relate generalise conclude
Evaluation	judge evaluate determine recognise	support defend attack criticise	identify avoid select choose

From 'Management of Learning', Ivor K. Davies

Fig. 3: Some descriptive verbs

WORDS OPEN TO MANY INTERPRETATIONS	WORDS OPEN TO FEWER INTERPRETATIONS
to know	to write
to understand	to recite
to *really understand*	to identify
to appreciate	to differentiate
to *fully appreciate*	to solve
to grasp the significance of	to construct
to enjoy	to list
to believe	to compare
to have faith in	to contrast

Words commonly used in stating learning objectives (Reproduced with permission)

From 'Management of Learning', Ivor K. Davies

There is, I admit, some difficulty in structuring the material for the minimum, average and wide-ability levels met with in any group of students—the same sort of difficulty encountered in lecturing to any agglomerate of students. This can to some extent be overcome by preparing audio scripts at differing levels of ability, or issuing sets of notes (incorporating questions) at varying ability levels.

There are various fairly complex ways of analysing subject matter, including such techniques as Task Analysis(7), Network Analysis(8, 9), and Information Mapping(10,11). A simple method of analysis is described below, in two stages.

Stage 1: Using a large sheet of paper, write down the aim of the subject matter in a box in the centre of the page. From this, travel outwards radially, listing *every* item that comes to mind under this subject aim. (Fig. 4.)

Having detailed the required knowledge like this, examine each entry to determine whether in fact it should already be known by the student. indicate this on the plan in some way, eg by ringing. These items can then form the *Entry Requirements* for your tape-slide, and can be provided as a list with the package. The value of such an arrangement is that it tells the student or lecturer what should be known *before* the package should be attempted.

From this detailed map of what has to be taught to the student, you can progress to an identification of the behaviour required. (Fig 5.)

Stage 2: At the top of another large sheet of paper, write the aim of the subject matter (see Stage 1—'State Problem'). Then, under this, list every item that appeared in your first map, *sequentially*, leaving out those that you have decided to include under the heading of 'Entry Requirements'. Pay particular attention to the verbs used to describe the learner's activities. Leave space between each item. (Fig 6.)

Stage 3—Structuring the analysis

You have now arrived at a fairly detailed approximation of the behaviour you expect your students to achieve with your proposed package. The next step is to put this into logical order.

I find that the easiest way to do this is physically to separate each item (ie cut along the dotted lines in Fig 6) so that each can then be moved about freely until you have decided its correct place in the list of items. When you are satisfied with the order, you can staple, or stick, the items in place on another sheet of paper.

This structuring activity described will reveal any omissions in your analysis, which can be put right at this point before commencing with stage 4.

Fig. 4: Analysis of Problem: I (Incomplete)

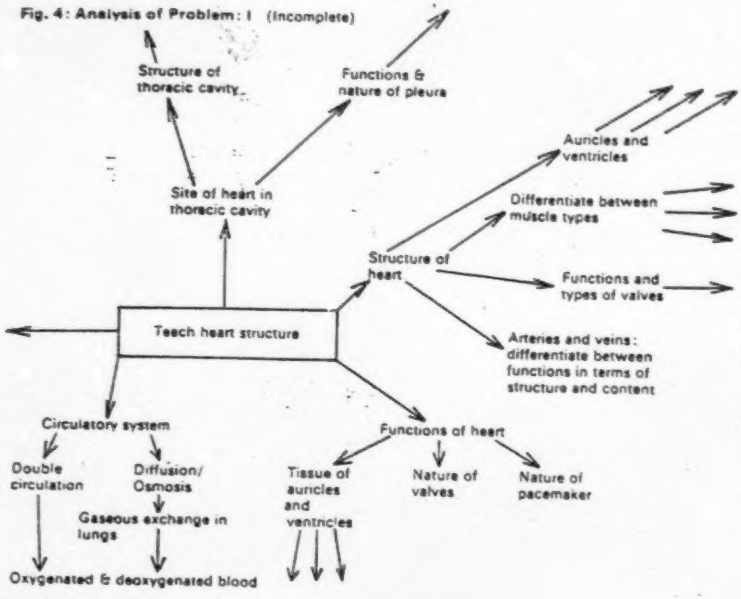

Structure of thoracic cavity
Functions & nature of pleura
Site of heart in thoracic cavity
Auricles and ventricles
Differentiate between muscle types
Structure of heart
Functions and types of valves
Teach heart structure
Arteries and veins: differentiate between functions in terms of structure and content
Circulatory system
Functions of heart
Double circulation
Diffusion/ Osmosis
Gaseous exchange in lungs
Tissue of auricles and ventricles
Nature of valves
Nature of pacemaker
Oxygenated & deoxygenated blood

Fig. 5: List of entry requirements

Before attempting this tape-slide package, the student will be familiar with:

1. Structure of the thoracic cavity, including the accurate position of the heart.
2. The classification of muscle types.
3. The function of a valve.
4. The concepts of diffusion and osmosis.

Fig. 6: The sequential ordering of an analysis

Aim: Teach heart structure

1. Identify position of heart in body
2. Identify, on an unlabelled diagram of the heart, the following structures: right and left auricles and ventricles, tricuspid, mitral and watch-pocket valves, main arteries and veins
3. List the stages in the route taken by blood travelling through the heart, differentiating between oxygenated and deoxygenated blood
4. Name, and state the functions of three of the valves found in the heart

Stage 4—Establishing the objectives

Recently, behavioural objectives have come in for a certain amount of criticism, some of which is certainly deserved[12, 13, 14]. In spite of this, correctly used they can form a valuable analytical tool. The art (or science) of writing objectives has been covered in previous articles[15,16]. You have, in fact, already written a great deal of your objectives by this stage.

What you may not have done, and must do now, is to establish:

1. the conditions under which your students' learning is to take place,
2. the conditions under which you expect them to reproduce that learning, and
3. the standards you expect them to reach.

If you wish to carry your enquiries into writing objectives further, Mager's book[17] is an invaluable help.

These objectives then serve as a map which your tape-slide package can follow, as well as a testing instrument to determine how well the students have learnt the material.

If you construct a test (of some sort) based *only* on these objectives, it can be used in the following ways. Given *before* the instruction (as a pre-test) it will serve to identify those students who already know the material—and who therefore do not need to use the tape-slide unit.

Given *after* the instruction (as a post-test) it will serve to identify how well each student has done, whether a satisfactory standard has been reached, or whether remedial instruction is needed.

Stage 5—Decide whether tape-slide is an appropriate presentational medium

In spite of our increasing utilisation of audio-visual aids, very little is known about how or why they maximise learning potential (if, indeed, they do!). We are not yet in a position to be able to dispense a specific teaching medium for a specific topic. However, there is sufficient evidence available to suggest that such a medium as tape-slide *is* worthy of inclusion in our teaching repertoire.

Obviously, if the topic is one which lends itself to a visual presentation, or can be conceptualised visually, then this medium is well worth considering.

Apart from this the only reservation that I would have about using tape-slide is where a topic deals with a skill involving a complex physical movement which has to be illustrated.

REFERENCES

(1) Gordon R M, *Classrooms Without Chalkboards*, Educational Technology, April 1975.

(2) Toffler, A, *Future Shock*, Pan Books Ltd, 1972.

(3) Hsia, H J, *On Channel Effectiveness*, Audio-Visual Communication Review, 1968, 16, 3.

(4) Hartman F R, *Single and Multiple Channel Communication: A Review of Research and a Proposed Model*, Audio-Visual Communication Review, 1961, Vol 9, No 6.

(5) Gropper, G L, *Why a Picture is worth 1,000 words*, Audio-Visual Communication Review, 1963, Vol 11.

(6) Farrugia, C, *Intellect: The Cinderella Element*, British Journal of Educational Technology, January 1975.

(7) Dodd & Hudson, *The Sheffield System*, PICI (1972).

(8) Townsend, I J, *A Programmed Approach to Science Skills*, School Science Review, No 186, Sept 1972.

(9) Wyant, T G, *Network Analysis*, Coventry Technical College (1972).

(10) Wyant, T G, *Simplified Information Mapping*, Coventry Technical College.

(11) Horn, R E, *A Reference Collection of Rules and Guidelines for Writing Information Mapped Materials*, Information Resources Inc (1971).

(12) MacDonald-Ross, *Behavioural Objectives: A Critical Review*, Instructional Science, 2, 1973, 1-52.

(13) Eisner, E W, *Educational Objectives—Help or Hindrance?* School Review, Autumn, 1967.

(14) MacDonald-Ross, *Behavioural Objectives and the Structuring of Knowledge*, APLET Aspects of Educational Technology, 1972.

(15) Marson, S N, in *Appreciation of Resource Based Learning*, NHS Learning Resources Unit, 1975.

(16) Townsend, I J, in *Effective Use of Audio-Visual Aids: Pre-Course Reading*, NHS Learning Resources Unit, 1975.

(17) Mager, R F, *Preparing Instructional Objectives*, Fearon Publishers.

from -
"BASICALLY BRANCHING" by
DEREK ROWNTREE.

2

8. Make It Readable

Skill at programming, as I have already said, depends chiefly on skill at writing (together with a few special techniques and tricks of the trade). The techniques are easily picked up; but the basic writing skill is not—so very much it is a matter of 'flair'.

Truly, writers are born, not made. Yet writers can sometimes be made better (and more productive). It is for this reason I include a chapter about writing in general, before I come to programming in particular.

Programmers should think of themselves as writers, sharing the same basic problems as all other dealers in words—the novelists, playwrights, poets, journalists, copywriters, and so on. They should be aware of the common craftsmanship in writing. They should strive for style and for *readability*.

READABILITY

Readability is a virtue much neglected by programmers. They have been so drunk on the psychological principles of learning that readability has gone by the board. And it shows. Too, too often we hear students complain that programmes are boring. It's just as well they aren't compelled to read the professional journals *about* programming. That really would give them something to complain about. The contributors to such journals rarely take the trouble to make their prose interesting, and if we plough through it at all it can only be out of a strong sense of duty.

How do such authors get away with it? Rudolf Flesch[1] sees it like this:

> 'The ordinary person, when he gets bogged down in a book or an article, wouldn't think of saying, "The author of this can't write"; he will say "A layman like me will never understand this" and let it go at that.'

---

[1] Rudolf Flesch. *The Art of Readable Writing*. Harper and Row.

Clearly, we can't afford to let the student feel like this about our programmes. At the very least we have to keep him reading.

Readability is a highly significant fact of life for the programmer. He *must* keep the student's attention. This is not always easy. In the words of Robert Graves:

> 'We suggest that whenever anyone sits down to write he should imagine a crowd of his prospective readers (rather than a grammarian in cap and gown) looking over his shoulder. They will be asking such questions as: "What does this sentence mean?" "Why do you trouble to tell me that again?" "Why have you chosen such a ridiculous metaphor?" "Must I really read this long limping sentence?" "Haven't you got your ideas muddled here?" By anticipating and listing as many questions of this sort as possible, the writer will determine certain tests of intelligibility to which he may regularly submit his work before he sends it off to the printers.'

What is this readability? What is it makes one programme boring while another is unputdownable? Basically it is a matter of how the programmer makes contact with his reader. It is a matter of style. And as soon as we start examining style we ask whether the author uses: Short sentences? Simple words? Brief paragraphs? Forceful sentence structure? Repetition? Human interest?

A good many books have been written about these aspects of style and how they can be manipulated in the cause of clear writing. I mention a few titles at the end of this chapter and they should be required reading for every would-be programmer. Meanwhile, however, I'll touch on a few of the points which they explore in greater and more useful detail.

Keep Your Sentences Short

Long, meandering sentences are the curse of academic prose. Too often you'll pick up a 'learned' journal and find its pages full of sentences that run over three lines or more. Such sentences tend to be too crammed with ideas, relationships and qualifications to allow easy reading. You often have to look them over two or three times before you get their drift.

For instance,

> 'The students studied from locked machines for the entire period preceding the mid-term examination, following which the machines were unlocked so that the control exercised by the test-sequences could be by-passed at the students' discretion with the result that error-rates and rates of progress through the programme had to be calculated from data collected prior to the mid-term examination.'

The shorter your sentences, the more vigorous they are. The fewer the words, the more emphatic. Remember, the more often you use the full stop (or, indeed, the colon, semi-colon, or dash) you are giving your reader a chance to pause for thought. And it is during the pauses that your meaning seeps through to him.

— *Averages*

Your *average* sentence length should not exceed 20 words. Most of the great modern writers have a rather lower average. Some people claim that sentences have been getting shorter ever since the beginning of English prose. In Elizabethan times, the average was around 30–40 words, but it had fallen to about 20 by the turn of this century. And the average is still dropping.

What's been happening is that writing has been getting more and more like speech. And long sentences just don't occur in ordinary face-to-face conversation.

Of course, I am talking about averages only. It is still perfectly possible to write the *occasional* long sentence (30–40 words) which communicates perfectly. But you need to have a good ear for the rhythms of prose and a firm grasp of the ideas you are wrapping up in it.

Variety

Indeed it is essential that you do vary the lengths of your sentences. If they are all short, they make a choppy read. Aim to use sentences of different lengths (thereby varying the rhythms) but always remember to keep the average down to below 20, and use your very short sentences (10 words or less) to give particular emphasis.

You'll often find that the length of a sentence will depend to some extent on its position in a paragraph. You may feel your reader can digest a longish sentence in the middle of the paragraph provided you have enticed him in with a couple of short, snappy sentences. Likewise, you may end your paragraph with a brief sentence that neatly sums it up.

Breaking them up

Whenever you read through a piece of your writing, look for places where you can split the complex sentences. Look out for the 'ands', the 'buts', the 'howevers', and all such words that introduce phrases and clauses that might practicably be broken off to make new sentences. For instance, let's re-write the paragraph I showed you at the beginning of this section:

> 'The students studied from locked machines for the entire period preceding the mid-term examination. After the examination, the

> machines were unlocked: thus the control exercised by the test-sequences could be by-passed at the students' discretion. For this reason, error-rates and rates of progress through the programme had to be calculated from data collected prior to the mid-term examination.'

(The average sentence-length has fallen from 77 words per sentence to less than 15 words per sentence. (When measuring readability it's legitimate to count any set of words that ends in a full-stop, a colon, a semi-colon, or a dash as a sentence.)

Typing Check

If you work onto a typewriter you can easily keep a running check on sentence length without doing too much counting. With normal type-size and average margins, you'll get about 10 or 12 words to the line. A sentence that takes up the equivalent of two lines will therefore have about 20 words. (If any of your sentences exceed two lines, you'll be wise to throw in the occasional one that takes up perhaps only half a line.)

Watch Your Sentence Structure

Actually, if you try to keep your sentences short, you'll probably find they stay simple in structure. It is in the longer sentences that clauses and phrases proliferate, and we get confused by seeing too many relationships in the air at once. For instance:

> 'The fact that the molecules in a liquid are closer together and thus the attractive forces between them are very much greater than the very minute forces between the molecules of a gas, is responsible for the greater resistance by a liquid to compression.'

But, if we take the structure apart into smaller sentences, we make it much easier to read and understand:

> 'The molecules in a liquid are closer together than they are in a gas. Consequently, the attractive forces between the liquid molecules are much greater than the very minute forces between the gas molecules. As a result, liquids are more resistant to compression than are gases.'

Word order

Pay particular heed to the order of the words in your sentences. For instance, it does make a difference whether you write:

> 'We say a current flows when electrons move in the same general direction for a period of time', or: 'When electrons move in the same general direction for a period of time we say a current flows.'

Usually, the emphasis comes at the end of the sentence.

Look at another example. After discussing kerosene particularly, you might want to say: 'Kerosene is the safest fuel for jet engines'. However, if you have been talking about fuels safe for jet engines you'd be more likely to remark: 'The safest fuel for jet engines is kerosene'. The important thing is that you be aware of what you want to do with each sentence, and where you want the punch to come. Word-order can make a great deal of difference to the impact of your writing.

Variety

Also, try to avoid a monotonous repetition of sentence structure. Automated instruction does not demand assembly-line sentences. Notice the tiring sameness of the sentences in this next paragraph:

> 'Railway lines expand in hot weather. So they are laid in separate lengths. There is a gap between each length and the next. The lengths are bolted together by fish-plates. The fish-plates are drilled with oval holes. These oval holes allow the bolts to slide when the rail expands.'

These sentences look as if they have all been poured from the same mould. They are all virtually the same length—between six and twelve words; and they all have the same structure—subject followed by verb. Furthermore, the flow of the paragraph is so hesitant that it's difficult to see how the various ideas hang together. No wonder it makes tedious reading. To cure this tedium it's forgivable even to increase the average sentence length:

> 'Since railway lines expand in hot weather they are laid in separate lengths with a gap between one length and the next. Fish-plates are used to bolt the lengths together. Each fish-plate is drilled with oval holes which allow the bolts to slide as the line expands.'

This revised version varies the length and structure of its sentences, and the relation among the various ideas comes out better. Even though the average sentence-length has increased from 8½ words per sentence it is still quite acceptable at 16 words per sentence.

Shorten Your Paragraphs Also

In most popular newspapers, the paragraph is just about extinct. In the interests of layout and 'white space', practically every sentence is its own paragraph. It is worth bearing this in mind: if your student is, say, a *Daily Mirror* reader, don't give him many paragraphs that are longer than this one. Too solid a block of print will weary his eye and confirm all his worst suspicions about learning.

And remember, just like those between sentences, the breaks between paragraphs are the reader's 'thought pauses'. He may or may not want to use them, but it's wise to make them available.

Make Your Words Work for You

Jargon

Man seems to have an instinct for fence-building—intellectual as well as physical. Whenever a new subject-area is discovered, its discoverers tend to throw up a wall of words to keep out the ignorant. This is certainly the way it has been with programmed learning. Programming jargon is now considerable, and probably wins more enemies than friends.

Few opponents of jargon have been more scathing than George Bernard Shaw:

> 'Our professional men of science are mostly trained not to believe anything unless it is worded in the jargon of those writers who, because they never really understand what they are trying to say, cannot find familiar words for it, and are therefore compelled to invent a new language of nonsense for every book they write.'

Introducing new words

Of course, some special terminology is bound to crop up in any subject-matter. It is a kind of shorthand, allowing us to put big ideas in handy-size packages. However, there are good ways and bad ways of getting your student to learn the language of his subject.

The bad way is to throw all the words at him before he's had experience with the ideas they stand for. Too often I hear of would-be programmers who aim to give the student a 'working vocabulary' *before* he gets down to studying the subject properly! Well, this may be easy teaching but it certainly makes for difficult learning. It's as if you taught a child the words 'oven', 'sink' and 'refrigerator', and only then sent him into the kitchen to find objects matching these names. Naturally he could only 'really' learn the names in association with the objects they represent.

It's just the same with ideas. If they are made attractive enough, the names almost attach themselves. Children don't have much difficulty in using and recognizing 'difficult' technical terms, provided they are led to see the need for them. You might say for instance:

> 'So, as you've seen, we are sometimes interested in just the *size* of a number, and not whether it is positive or negative. Your debt of −£5 is somebody else's asset of +£5, and you realized that you would both be thinking of the same amount and ignoring the sign. From now on, when we want to refer to the *size* of a number (apart from its sign) we'll call it the *absolute value* of the number.'

Provided the student then gets practice using the words 'absolute value', he's not likely to be much troubled by them. After all, they sum up an idea with which he is already quite familiar. Remember, the natural process is the recognition of the concept *followed by* its naming. And that's the way we should handle it in a programme.

Let the student work with a new idea before you expect him to respond to its name. Then, introduce the new technical term *boldly*. Tell the student this is a new word and get him using it. Don't try to slip it to him in the middle of a sentence about something else. It's not enough just to leave it lying around in the hope he'll pick it up. All he's likely to do is trip over it.

Incidentally, it's often a good idea, when you're introducing a rather unusual-looking new word, to give some hint as to the pronunciation (e.g. 'pronounce it *may-triss-ease*'). The word is much more likely to stick in the student's memory if he henceforth 'hears' it every time he comes across it in his reading.

Admittedly, children are sometimes happier with technical words than they are with the more basic parts of vocabulary. It has been noticed that words like 'television', 'sputnik', and 'astronaut' are 'easier' than, say, 'then', 'where', or 'there'. Why? Possibly because they are more distinctive in shape, and perhaps also because they are more picturable. The easiest word to learn is not necessarily the smallest: it is the one with the biggest impact of meaning.

In one of his vigorous lectures about programmed learning, Squadron-Leader Ivor Davies tells of some eight year old children he watched playing in the yard of a Californian school during morning break. As he watched, a jet aircraft screamed overhead. 'Wow,' said one of the boys, 'it's gonna break the thermal barrier.'

'So what!' said his companion. 'Those jets have ceramic nosecones that bleed off the superfluous heat.'

Just then the bell rang for morning school to resume.

'Oh well,' said the first boy, 'let's get back to stringing those crummy beads.'

Yes, children can be quite at home with 'big' words, provided they feel the need for them. Creating that need is part of your job as a programmer.

Beware Circumlocution

Circumlocution is the disease of writers who worry about being tied down too closely to what they are saying. Its symptom is the use of several words—generally outsize words at that—where one will do. This piling up of words saps the strength of a sentence and the many words are less forceful than one would have been. However, they can briefly disguise the fact that the writer has nothing to say.

Remember Pope's telling couplet:

> 'Words are like leaves and where they most abound
> Much fruit of sense beneath is rarely found.'

Avoid surplus words

Watch out particularly for long, heavy phrases like 'in the approximate vicinity of' (which can be replaced by 'about'). Such phrases will be a drag on the action and can usually be replaced by one or two simple words. Here are some examples of phrases to avoid, together with their substitutes:

A large number of	many
A certain amount of	some
At the present time	now
For the reason that	because
Exhibits a tendency to	tends to
In the event that	if
In a satisfactory manner	satisfactorily (or well enough)
Having a value of	worth
In the great majority of cases	usually
Of a serious nature	serious
On the grounds that	because (or since)
With a view to	to

And you'll run up against many more such phrases that can be simplified, replaced, or even omitted.

Avoid Latinisms, abstractions, and fancy words

There was a time when you could cut quite a figure by using big words. People would say: 'He must be intelligent. Look at the language he comes out with. I can't understand a word.' These times, however, are gone. We now suspect the motives of the man who speaks as if he has swallowed a dictionary.

So, in your own writing, watch out for words like 'utilize', 'relinquish', and 'enumerate' when you might more simply write 'use', 'give up', or 'count'. Always look for the everyday word, and use it in preference to the less familiar one.

Here are a few examples of roundabout, abstract ways of disguising simple ideas:

sumptuous repast = hearty meal
endeavour to accelerate = try to speed up
tender assistance = offer help
disseminate misinformation = spread lies
housing accommodation = houses
aggravation of the redundancy situation = more sackings
comprehensive cessation = widespread stoppage
nasal haemorrhage = nose-bleed

These pompous phrases just look funny when we see them here like this. But they are not at all amusing when you get a few of them together in a paragraph. Look at this for instance:

> 'The provision of mathematical instruction for post-adolescent persons is a task whose difficulty is of a considerably larger order of magnitude, for the reason that their earlier exposure to mathematics instruction has resulted in a diminishing of confidence. Their personal self-evaluation implies that mathematics is an area of study with which they are destined to have perpetual and irremediable lack of success, and it is a universal human predilection to refrain from pursuits whose ultimate objectives are calculated to augment one's initial appreciation of one's intrinsic ineffectiveness.'

Translated, this seems to mean:

> 'It's much harder to teach adults about mathematics since bad teaching has already robbed them of confidence. They feel doomed to failure in mathematics—and we all shrink from trying something at which we are likely to fail.'

The circumlocutions are not the only thing wrong with the paragraph, but you'll see how removing them has shortened its length and clarified its message.

Another example: Whoever would think that 'heliotropic inclination in the direction of the source of illumination' could mean 'turning toward the light'?

So, if you get rid of long tortuous phrases, and abstract words like 'facilitate', 'potentiality' and 'recapitulation', you'll find you are using *shorter* words. And, just as with sentences and paragraphs, the shorter your words, the more *emphatic* is your writing.

Somerset Maugham once said: 'To write simply is as difficult as to be good.' If you'd find it a strain to attempt both, please concentrate on writing simply.

Use Strong, Active Verbs

Of all the words in your programme, the verbs are going to carry the burden of the story. Make sure you use full-blooded verbs that really tell what somebody or something *does*.

Take an example: 'Hamlet killed the King.' In that sentence the verb is strong—it is *active*. What happens if we make the verb *passive*? 'The King was killed by Hamlet.' Because the verb is passive, all the sizzle has gone out of the sentence.

Here are some more examples:

Passive: 'An experiment was performed.'
Active: 'We performed an experiment.'
Passive: 'Logarithms may be used.'
Active: 'You may use logarithms.'
Passive: 'Errors in the Accounts department have been reduced through the use of the new machine.'
Active: 'The new machine has reduced errors in the Accounts department.'
Passive: 'The flask is to be held over a bunsen burner and heated until some warmth is imparted to it.'
Active: 'Hold the flask above a bunsen burner and heat it until it gets warm.'

Notice that the passive verb-forms usually involve you in circumlocution, and the sentences are generally longer than when the more direct, active verb is used. So, the active verb is likely to shorten a sentence as well as give it punch.

Naturally, you'll *sometimes* want to use a passive verb. This will happen if you want to put the emphasis on the action rather than on the agent. 'Free beer is provided by the management' puts the emphasis on the action rather than the agent (the management). The fact that beer is provided free might be thought more significant than who makes it available. If so, you'd prefer that form rather than 'The management provides free beer.'

The occasional passive does no harm; in fact it adds to the variety of your style. But do be aware of whether you are writing passive verbs, or active, and don't use the passives too frequently. They make drab reading.

For generations, the books on writing have urged their readers to use active verbs, and avoid adjectives. The great novelists have always used vivid verbs which *showed* their characters in action, rather than adjectives which would merely have *told about* them. Some psychologists have used the ratio between verbs and adjectives as a yard-stick to measure the forcefulness of a piece of writing.

Too many textbook sentences are merely agglomerations of gerunds and participles, nouns and adjectives, strung together

with a few prepositions and bits of the verbs 'to be'. Here is an example:

> 'The typical Equatorial day is of a fixed pattern. In the morning it is noted that the sky is in a clear, calm condition. But with the daily accumulation of heat, so the ascent of hot-air currents is begun, leading to the formation of towering cumulus clouds and the regular afternoon commencement of downpours of heavy rain.'

There is not one active verb in the whole paragraph. Let's see if we can give it a little more zest by putting action into the verbs:

> 'The typical Equatorial day follows a fixed pattern. In the morning the sky is clear and calm. But, as the earth gets hotter, currents of hot air begin to rise, and the towering cumulus clouds build up. Regularly, every afternoon, they release downpours of heavy rain.'

Apart from making it more vivid, the active verbs have forced us to reduce the length of the paragraph.

Here is another flabby sentence from a report. It is heavy with noun-forms taking the place of verbs:

> 'A significant observation was recorded with regard to the characteristic study behaviour of students whose assignments were on the teaching machine.'

If it means anything, it means:

> 'Machine students worked in a special way.'

Make a habit of inspecting your own writing. Look to see if you are using weak verbs too often. Keep an eye on the number of words that end in

ed, (e.g. noted)
tion, (e.g. formation)
ment, (e.g. commencement)
ing, (e.g. leading)

These weak endings usually go hand-in-hand with a weak verb like 'to be', 'to make', and 'to have'. The verbs 'occur', 'become', 'take place' also need watching. For example:

Weak: 'A slump in profits was noted.'
Strong: 'Profits slumped.'
Weak: 'To write a best-selling thriller is my intention.'
Strong: 'I intend to write a best-selling thriller.'
Weak: 'The enrolment of students took place on Thursday night.'
Strong: 'Students enrolled on Thursday night.'

Weak: 'Squealing of the tyres becomes apparent to the ear when cornering.'

Strong: 'You'll hear the tyres squeal when you go round corners.'

Weak, passive verb-forms just seem to wrap the meaning in cotton-wool. This is fine for people who are unwilling to commit themselves to a point of view; but it is no use to the programmer with objectives to reach. Remember the words of H. G. Wells: 'I write as I walk, because I want to get somewhere. And I write as straight as I can just as I walk as straight as I can, because that is the shortest way of getting there.'

Punctuation?

Punctuation does play a part in readability; but if you use short sentences, and active verbs, you'll probably have no great punctuation problems. The more frequently you use the full stop, the less use you'll have for any of the other punctuation marks. Along with the shrinking of the modern sentence there has come about a much more open kind of punctuation.

The purpose of punctuation is to help the reader read. You punctuate your writing so that he can see the relationships between words and phrases, phrases and sentences. Your various punctuation points show him the places he can pause (for various lengths of time), and give him some idea of the relative importance of various bits of your sentences.

Remember that writing is only a substitute for speech. If you really have trouble punctuating, try reading your sentences aloud. Notice where you pause briefly; notice where you read as if in amplification of what you've just said; notice where you try to read two consecutive sentences as if they were more closely joined together than usual; notice where you want to give particular emphasis to a word or sentence.

If you only want the reader to pause briefly, insert a comma.
A full stop gives a longer pause.
If you want to insert a comment (sensible or otherwise) on what you've just written, then enclose it in brackets.
Alternatively—perhaps to make your writing look more vigorous—you can set off the comment by a pair of dashes.
If you want two short sentences to be linked together, use a semi-colon; this gives a longer pause than a comma but shorter than a full-stop.
If you want to give particular emphasis to a word, underline it, or put it in *italics*.
If you must emphasize a complete statement, use the exclamation mark!

Remember, you are punctuating so as to show the structure of the sentence. If your sentence is simple you'll have little trouble punctuating it.

Make Your Writing Friendly and Personal

The best way of getting across to a student is by making your writing friendly and informal. Write like you talk. Remember that we are trying to emulate the tutor–student relationship. You should be putting down on paper exactly what you would say to the student if he were there in front of you. The fact that he's going to read instead of listen does not mean you can elongate your words and make your sentence structure unnecessarily elaborate.

You and I

Speak to the student directly. When you want him to do something, refer to him as 'you' (never as 'the reader' or 'the student'). Refer to yourself as 'I' (or 'we' if you want to stress that you and the student are working together); never entitle yourself 'the Author'. See what happens if you ignore these warnings:

> 'The student is reminded at this point that the digodity of ossibules was brought to his attention by some remarks of the author in the preceding chapter.'

The third-party references to 'the student' and 'the author' throw a momentary remoteness over the whole proceedings. (The poor reader is not quite sure, for a moment, just how many parties are engaged in this little interchange. There seem to be at least three, maybe four!)

And what happens if we express the sense of that sentence more personally? One thing you'll notice is that the verbiage decreases:

> 'You'll remember I mentioned the digodity of ossibules in the last chapter.'

So, use the personal pronouns: 'I', 'we', and 'you'. Don't take refuge behind phrases like 'the programmer'. Admit the 'I' and 'we' of it, and take the responsibility for what you write.

How far you can work this friendly, conversational style depends on how well you can imagine what you'd want to *say* to your student—without him actually being there in the flesh to prompt you. However, there are a couple more devices that might help you get into the spirit of the thing.

Contractions

One of these devices is the use of contractions. By this I mean, for instance, that we don't say 'do not' every time we want to use that idea in a sentence. According to the rhythm of the sentence (and whether we'd have made the contraction in speaking it) we may want to write 'don't'. Contractions do have a tonic effect in knocking the stuffiness out of a piece of prose. Here are the ones you may want to use:

I'm, I've, I'll, I'd
you're, you've, you'll, you'd
he's, he'll, he'd
she's, she'll, she'd
we're, we've, we'll, we'd
they're, they've, they'll, they'd
isn't, aren't, wasn't, weren't
hasn't, haven't, hadn't
won't, wouldn't, shan't, shouldn't
can't, couldn't, mustn't
don't, doesn't, didn't
here's, there's, where's, how's, what's, who's
let's, it's (it is)

But remember: Only write the contraction if you would use it in speaking the particular sentence. Thus you might easily have the same pair of words repeated in the same sentence, one pair contracted and the other not. For instance:

> 'I repeat that we *cannot* afford the experiment—and you *can't* pay for it either!'

Rhetorical questions

The rhetorical question also will help give a conversational flow to your writing. This is the question that you ask the reader, perhaps at a beginning of a paragraph, and then answer during the remainder of the paragraph. For instance:

> 'Now which of these averages is going to be most useful to us? Well, we've seen that the median depends only on the middle-sized observations and is insensitive to the extremes. . . .'

This kind of question is not only useful for whipping up the student's interest and getting him intrigued. It often provides a means for breaking up an unwieldy sentence. For instance, what can we do with this sentence?

> 'In order to distinguish between constant values and varying values, lower-case letters are assigned to the variables and upper-case letters to the constants.'

We can start it off with a question:

> 'So, how are we going to distinguish between the constant values and the varying values? Simply enough: we'll use lower-case letters for the variables, and upper-case letters for the constants.'

Lightness of touch

Aim, throughout, for lightness of touch. Don't take yourself too seriously. Make your points as simply and as humanly as possible. Remember that your pet subject is not likely to be the ruling passion of your student's life. Keep reminding yourself of his viewpoint.

Be friendly, be informal, be light of touch; but take care to avoid the cute, flippant, chit-chat that so many authors inject in a misguided attempt to be matey (and which they would never dream of using face to face with their students). Be conversational, yes, but don't be over-familiar.

Dramatize Your Teaching

Whenever possible, try to get a bit of drama into your prose. People are better at reading about other people than about anything else. If possible, develop your subject-matter through people's discoveries, interests, and activities. If you can't find real-life people to refer to, invent some. Occasional sequences of narrative, case-studies, dialogue, anecdotes, unusual applications, quotations from named sources, these can all do wonders in sustaining interest.

See how the writer of a management programme comes down from his abstractions: see how he illustrates them with a human situation:

> YOUR ANSWER: When delegating, a good principle to follow is this: Clearly define the responsibility and authority which you delegate. When possible, put it in writing.
> You are correct.
> Now, here is a problem relating to delegation. Read it over and decide what you think is wrong.
>
> Albert Longrin, a field representative, reported that he was working in Bedford the first week in November. But, in fact, he spent three days of that week in Oxford attending a party. The assistant director, under whose jurisdiction Longrin operated, thought appropriate action should be taken. So he called Longrin to come back to headquarters.

Longrin admitted that he had not been working but, contrary to the facts, said he had been sick. After hearing Longrin's story, the assistant director told Longrin to go home, that he was suspending him.

When the director, who happened to be a friend of Longrin's father, learned about the incident, he stepped in and told the assistant director to call Longrin back to work.

Choose the statement that you think best describes the problem:

The assistant director exceeded his responsibilities.
The assistant director did not carry out his responsibilities.
The assistant director was carrying responsibilities without commensurate authority.

Isn't this more interesting (and more memorable) than coldly insisting that 'authority should be delegated commensurate with the responsibility to be discharged'?

Where possible, make your student the central character in the dramatization. For instance, in a programme explaining the working of the Stock Exchange, let him be the would-be investor with funds to dispose of. The facts of Stock Exchange life will be much more real to him if you can relate them to 'his' problems.

With some subjects and some students, you may want to model your programme along 'Pat and Mick' lines. For instance, Pat might be an experienced ship-builder walking around his shipyard explaining its operation for the benefit of a new employee, Mick. Mick asks all the questions that the student would want to ask, and Pat shows that an experienced man has all the answers!

You may find it useful to read through a few copies of the *Reader's Digest*. No writer who wants to communicate widely can afford to ignore the style that has given this magazine a world audience of 30 millions. Learn how the *Digest* popularizes inventions and scientific discoveries; see how it exploits the human interest in topics like radar and penicillin and lasers.

Perhaps its personalized approach wouldn't get your student very far into an academic discussion of such a topic, but at least it would catch his interest. He'd be much more willing to study the topic in depth once he'd been led to see it in human terms. In other words, the *Reader's Digest* approach might well be the *way in* to, say, science programmes for the less academic secondary schoolchildren.

So What is Readability?

Well, we still can't be sure we're going to get readability, but at least we know some of the factors it depends on: Short, simple words. Short, simple sentences. Short, simple paragraphs. Strong, active verbs. Human interest. Familiar, friendly style.

Getting the right intensity and balance among these factors is the very art of writing. When all is said and done, style and readability depend utterly on your sensitivity to the logic of your subject-matter, to the needs of your reader, and to the resources of the English language.

A number of people, mostly in the United States, have developed measures of readability, and I think the most practical is that described by Robert Gunning in his book, *The Technique of Clear Writing*.

The Fog Index

Gunning calls his measure the Fog Index, because it measures the 'fogginess' or heaviness of your writing. It takes account of the lengths of your sentences and the proportion of 'hard' words you use.

Here is how you can calculate the fog index of your programme:

'1. Jot down the number of words in successive sentences. If the piece is long, you may wish to take several samples of 100 words, spaced evenly through it. If you do, stop the sentence count with the sentence which ends nearest the 100 word total. Divide the total number of words in the passage by the number of sentences. This gives the average sentence length of the passage.

2. Count the number of words of three syllables or more per 100 words. Don't count the words (a) that are capitalized, (b) that are combinations of short easy words like 'book-keeper' and 'manpower', (c) that are verb forms made three syllables by adding -ed or -es (like 'created' or 'trespasses'). This gives you the percentage of hard words in the passage.

3. To get the Fog Index, total the two factors just counted and multiply by 0·4.'

Gunning grades his fog index from 6 to 17. These scores tally closely with the American reading grades. Material with a fog index as low as 6 can be read by eleven-year-old children: but it takes a college graduate to read material with a fog index of 17.

According to Gunning, 12 is the danger-point. Once your writing gets foggier than that, it's getting difficult to read. Of all the successful authors whose prose Gunning has tested, none came out with fog indexes above 11. Of the popular American magazines he tested, *Reader's Digest* has a fog index of 9, *Time* 10, and *Atlantic Monthly* 12.

It comes as no surprise to find that many of the 'standard works' on programmed learning have fog indexes of around 15, 16, and 17. This is particularly sad when you remember that their authors are trying to tell us how to *communicate!*

As Gunning himself stresses, the fog index is not a mould into which you pour your writing, assured that it will come out readable. The writers he tested did not sit down determined to write twenty words to every sentence and twenty 'hard' words in every 100. They simply wrote as well as they knew how.

No, the fog index is a gauge, not a pattern. Use it after you've written, not before. As Gunning says: 'Good writing must be alive; don't kill it with system.'

With programming, as with any other kind of writing, there are no sure-fire rules for success. There is no reproducible experiment. Each new programme must be newly mined from the resources of our language. However, we can identify a few principles of effective writing and, abstract as they are, they may serve as pegs to hang your own ideas on:

TWELVE HINTS FOR EFFECTIVE WRITING

1. Write like you talk.
2. Use the 1st person.
3. Use contractions.
4. Talk directly to the reader.
5. Write about people, things, and facts.
6. Use active verbs and personal subject.
7. Use verbs rather than nouns and adjectives.
8. Use short sentences.
9. Use short paragraphs.
10. Use rhetorical questions.
11. Dramatize whenever possible.
12. Use illustrations, examples, case-studies.

After all this, I'd hate to hear you say: 'Well, this informal stuff may be all right for glossy magazines and kindergarten instruction, but my subject is too tough to lend itself to such treatment.' That I just wouldn't believe. When the subject-matter itself is so tough, it is more than usually incumbent upon the writer to clear the way for his reader. If the subject itself bristles with difficulties then it's wasteful to have the student distracted by the difficulties of the prose in which it is expressed. As T. S. Eliot once remarked: 'There is a difference between the expression of obscurity and obscurity of expression.' It is surely significant that the writings of so many of our greatest scientists—like Darwin and Einstein—are not only superbly informative but also entertaining.

If you do need proof that authors can write in a personal and informal way (while remaining rigorously correct) about subjects like calculus, statistics, Boolean algebra, astronomy, and chemical structure, just take a look at some of the books by W. W. Sawyer, Darrell Huff, Irving Adler, Patrick Moore, and Isaac Asimov. Such 'conventional' authors have a lot to teach the programmer when it comes to readability.

Worth Reading

FLESCH, RUDOLF. *The Art of Readable Writing.* Harper & Row (32s.) 1949.

GUNNING, ROBERT. *The Technique of Clear Writing.* McGraw-Hill (35s.) 1952.

KAPP, REGINALD O. *The Presentation of Technical Information.* Constable (9s. 6d.) 1957.

COMPTON, H. *Conveying Ideas.* Cleaver-Hume Press (15s.) 1962.

Fowler's Modern English Usage. Revised by Sir Ernest Gowers, Oxford (21s.) 1965.

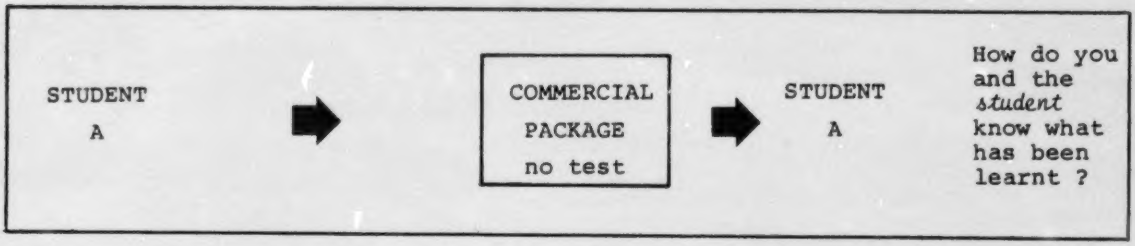
(Read each of the first three books at least once. Keep at least one of them beside you permanently. 'Fowler' also should be part of your standard equipment.)

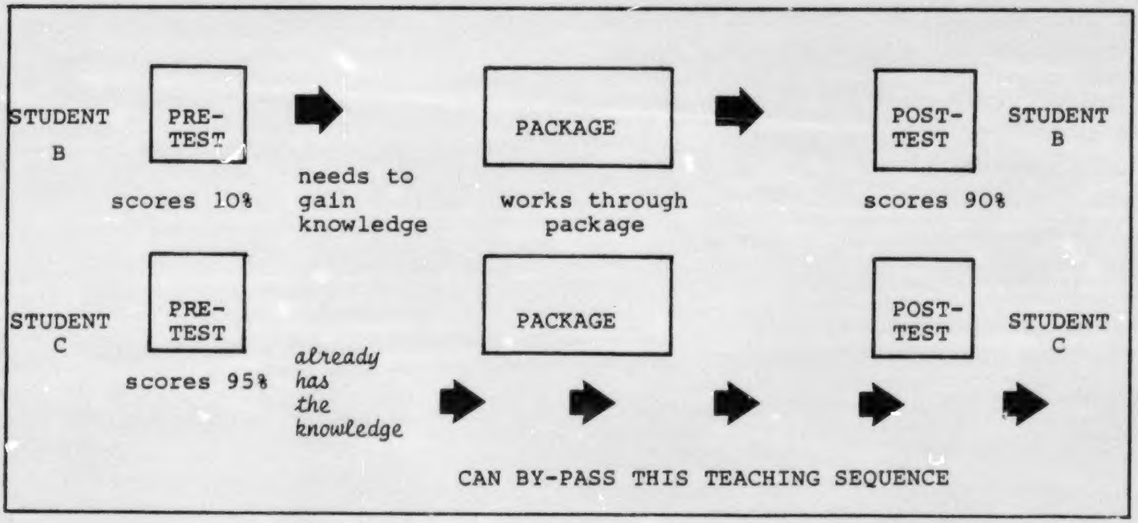
3

THE PLACE OF TESTS

As a piece of instruction, you will want to know how well your your tape-slide package performs. To do this you must have some way of assessing *what* the students have learn and *how well* they have learnt it. Many of the commercial packages on the market have been designed solely for entertainment - for they contain no tests.

Including a test with a package is therefore useful, especially if it is given both *before* and *after* the instruction. It allows your students to assess whether or not they need to work through the package. (A satisfactory score on the first - or "pre"-test would indicate that the student *already* has the knowledge the package sets out to teach). The same test also allows *you* to see how well they (and thus the package) has done on the final - or "post"-test and gives you an idea of their knowledge gain e.g.


STUDENT A
COMMERCIAL PACKAGE
no test
STUDENT A
How do you and the *student* know what has been learnt ?


STUDENT B
PRE-TEST
scores 10%
needs to gain knowledge
PACKAGE
works through package
POST-TEST
scores 90%
STUDENT B
STUDENT C
PRE-TEST
scores 95%
already has the knowledge
PACKAGE
POST-TEST
STUDENT C
CAN BY-PASS THIS TEACHING SEQUENCE

So you can see, the place of tests in your tape-slide *is* important. We recommend that you use your list of objectives to generate your test-items from, and include the same *paper-based* test on your package as a "pre" and "post" test.

You may like to consider the use of "question slides" (see guide) but remember that this *will* markedly increase the cost of production.

A good reference book to help you produce your tests is:

NORMAN E. GRONLUND (1968) "CONSTRUCTING ACHIEVEMENT TESTS"

Published Prentice-Hall International

The learning resources centre

The law of copyright

4

Geoff Crabb

THE PAST decade or so has witnessed the development of new techniques in teaching and training, not only in schools but also in higher and further education and in vocational training.

This development has taken several forms, but of particular importance is the adoption of a wide variety of visual aids coupled with the use of a diversity of material usually referred to as 'resource material'.

So, in addition to the traditional learning aids of textbook and blackboard, the present-day teacher and student may draw upon sound recordings, films and broadcasts. Furthermore, there has been a parallel growth in the range of devices, such as audio and video recorders and photocopying machines, which are able to duplicate or record resource material.

It is the ability to copy which brings the student, and more especially the tutor, face to face with the law of copyright, a highly complicated piece of legislation which affects everyone but about which the person in the street knows practically nothing.

Irksome though the law of copyright may appear to be, especially when it prohibits what seem to be quite harmless acts, its motive is entirely laudable. It seeks to protect the creators and originators of certain types of material from unauthorised use by others. This is partly in recognition that, for example, the author of a poem should be able to decide whether it should be published, or broadcast, or performed in public, but more importantly it provides the legal framework which enables the creator to sell to others the right to do certain acts and so derive a living from the results of his labour.

Without the protection of copyright, creators and producers would have no way of ensuring that they were paid for the value to the community of their products and, lacking this financial incentive, might decline to produce more, to the detriment of society in general.

The Copyright Act of 1956 (the Act) is the one currently in force in this country and it makes for pretty heavy reading; but for our purposes it may be summarised as specifying:

1. The types of material which are protected

(a) *Literary works.* Practically anything in word form from the most erudite medical textbook or article in a journal down to a personal letter, a railway timetable or a street directory.

(b) *Dramatic and musical works.*

(c) *Artistic works.* These include anatomical drawings, diagrams and charts, illustrations and photographs.

(d) *Films.* All gauges, sound and silent.

(e) *Broadcasts.*

(f) *Published editions.* This means the typographical layout of a literary or musical work.

2. The conditions which must exist before protection is given

(a) Must be in material form, so it is not an idea or concept which is protected but the material form in which it is expressed.

(b) Must be original, which means not copied from anything else, rather than that there has to be some element of novelty.

(c) Must be the work of a British subject or have been first published here or, if a work of foreign origination, must be covered by this country's treaty obligations. In practice it may be assumed that material from any country is protected here.

If these conditions are met, then protection is automatic and there is no way in which a work may be 'copyrighted'. The symbol © is a useful way of reminding users that copyright protection is claimed and is very desirable where material is likely to find its way overseas. In this country it has no legal status.

3. The period of time during which copyright subsists

(a) *Literary, dramatic and musical works.* Until the author's death and for 50 years thereafter, or for 50 years from first publication if the work was not published during the author's lifetime.

(b) *Artistic works.* Until the author's death and for 50 years thereafter, but photographs for 50 years from when first published.

(c) *Sound recordings and films.* For 50 years from first publication.

(d) *Broadcasts.* For 50 years from

Audio-visual equipment

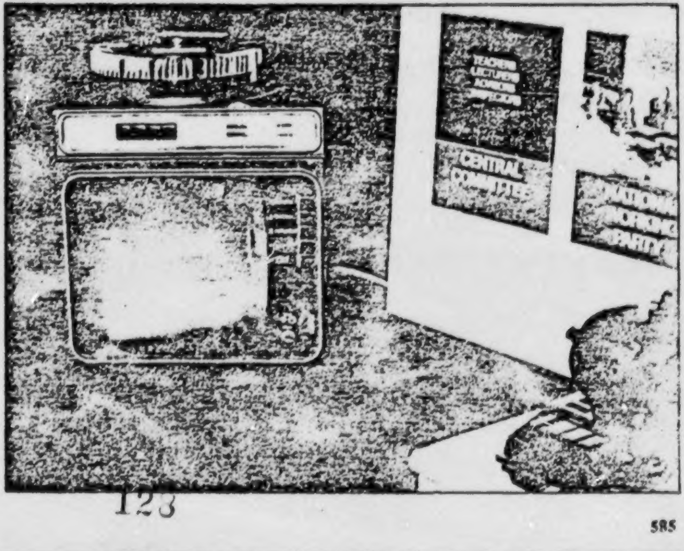


Photo: Ian Townsend

first transmission.

(e) *Published editions.* For 25 years from the first publication of the edition.

(f) *Crown copyright material,* that is, material produced by or under the control of the Government, such as HMSO publications, are protected for 50 years from first publication, but in the case of artistic works for 50 years from when they were made.

4. Who owns copyright?

Copyright is a movable property which may be bought or sold like any other, so who owns it at any one time is a matter of fact. The Act does say who owns it at the time of production, namely:

(a) *Literary, dramatic, musical and artistic works.* The author, except where made in the course of the author's employment, in which case the employer is the first owner.

(b) *Photographs and sound recordings.* The person owning the material (negative or tape) on which the photograph or recording is first made.

(c) *Films.* The person making the financial arrangements, in other words the person paying the costs of making the film.

(d) *Broadcasts.* The BBC or IBA.

(e) *Published editions.* The publisher.

5. The acts which may only be carried out with the permission of the copyright owner

These vary according to the type of material, but it may be taken that in each case making a copy, either in the original form or in a new form, is an act which may only be carried out with the permission of the owner of the copyright. As this is what students and tutors are most interested in doing, the rest of this article is concerned solely with the copying or recording of material.

It will be evident from the foregoing summary that all the materials normally used in teaching and learning are of a type capable of protection and that, since copyright is protected internationally and lasts for a very long time, most individual items which the student or tutor wishes to copy will be protected.

Happily, the 1956 Act also provides some relief by specifying those circumstances in which to copy without the permission of the copyright owner is not an infringement. Although not extensive, they do provide valuable concessions to the student and tutor once they are understood.

In order to infringe copyright a substantial part of the material must be copied. Although there is no definition of this term in the Act, the courts have established that the test of substantiality must be applied not only to the proportion of the part copied to the whole but also to the importance of the part in relation to the whole. For example, copying 10 pages of a 300-page textbook may not be a substantial part in volume, but if the part copied represents a summing up of the rest it could very well be a substantial part in terms of importance.

It is also important not to fall into the trap of regarding a photograph or illustration or diagram in a textbook as just part of the book. These constitute complete artistic works and their substantiality in relation to the book is immaterial.

Those wishing to copy material must decide for themselves whether they regard the part as being substantial and, if they are satisfied that it is not, then they should proceed. Of course, the copyright owner if he finds out may not agree, but since only a court action can decide and the copyright owner will have to initiate it, the risks are small. On the other hand the prospective copier should not adopt a cynical attitude but should honestly try to answer the question of 'substantial part' which the law allows him to do.

Even where a substantial part is copied, there is what is known as a 'statutory defence' called fair dealing. Unfortunately, this applies only to literary, dramatic, musical and artistic works, so it is not permissible to copy sound recordings or films and use fair dealing as a defence. Under these provisions, copying may be done for the purposes of research or private study, provided the amount copied, the number of copies made and the circumstances are 'fair' to the copyright owner.

No guidance is given in the Act as to what constitutes 'fairness', but the sort of questions the courts might consider are whether the copier made the copy or copies for personal use, and not for distribution to others for their private study, whether the number of copies made and the proportion of the work copied was reasonable, and whether the material copied was readily available through the normal retail or trade outlets.

As with the substantial part provisions, it is left to the user to decide whether the copying is covered by the fair dealing provisions and for the copyright owner to challenge in court if he does not agree.

The Society of Authors and the Publishers Association have said that they would regard it as being 'fair' if, for the purposes of research or private study, a single copy is made of a single extract not exceeding 4 000 words, or a series of extracts (of which none exceeds 3 000 words) to a total of 8 000 words, provided that in no case the total amount copied exceeds 10% of the work.

So, if the intended copying is within these limits, the user can go ahead, but if his needs exceed these, then the user is left with the problem of making the decision, and the risk of having to justify the decision in court.

Libraries, including public libraries and those in medical schools and other educational establishments, are permitted by the Act to make a single copy of a periodical article or of a reasonable part of a book (together with relevant illustrations) at the request of a person requiring it for private study.

The regulations which govern copying by libraries are rather irksome, and some libraries observe them to the letter while others are more casual.

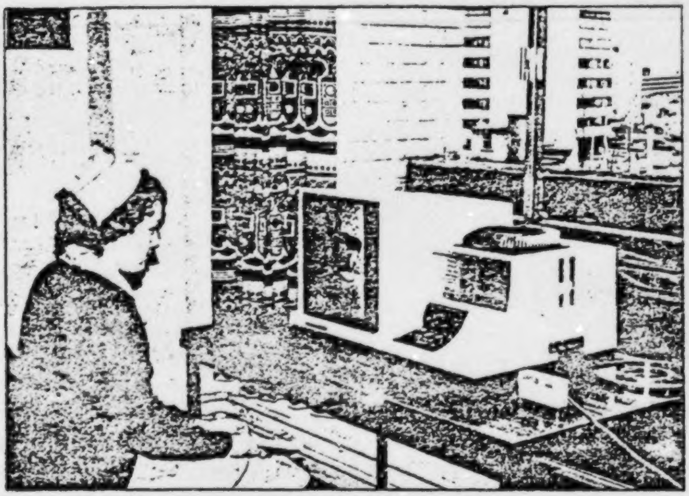
The fair dealing provisions are designed to help the private student, but there is a separate section of the Act which caters for teachers and tutors. Unfortunately, it is so out of date that it has very little value today. It permits teachers and pupils to copy literary, dramatic, musical and artistic works by means other than a duplicating process. There is doubt as to whether only schools are covered or whether institutions of further or higher education are included.

Of more value to the nurse tutor is the provision that these works may be copied, without restriction, for the purposes of asking or answering a question in an examination. The term 'examination' is not defined in the Act but it may be assumed it would not extend to class testing or dummy runs but only to the traditional type of formal examination.

Tutors may also benefit from a concession made by the British Copyright Council, which says that it is not necessary to seek permission to make a slide or transparency of a page of a book, text or illustration, if the slide or transparency is made for the purposes of instruction in an educational establishment. In making this statement the Council recognises that the making of slides and transparencies for lecture use is merely a modern equivalent of the epidiascope for the purposes of projecting works or pictures onto a screen.

The recording of broadcasts off the air raises some very complex copyright issues. A rather tortuous paragraph in the 1956 Act implies that to copy off-air for 'educational' purposes would not infringe the copyright in the broadcast.

The learning resources centre



A slide/tape carrel in use

The trouble is that the material being broadcast is still protected in its own right, and so to record the broadcast could still infringe the copyright in the various copyright elements in the programme itself.

The BBC and the IBA have made arrangements with the various contributors; which allow schools and further and adult education programmes to be recorded off-air for use in educational institutions, and this would apparently include medical schools.

The IBA require that the local education authority takes out an annual licence but there is no such stipulation by the BBC. Unfortunately, such 'educative' programmes as *Horizon* or *Tomorrow's World* are not included, because they do not come under the designation of further education, but tutors may well find in the BBC's *Annual Programme for Further and Adult Education* some material which might be of value to their teaching.

In addition, Open University programmes may be recorded off-air by OU students and, on payment of an annual licence and fees, by educational institutions as well.

To summarise the foregoing, rather complex, situation:

(a) Anyone can do anything with any copyright material and for any purpose provided that the part taken, both in terms of quality and quantity, is not a substantial part of the whole.

(b) Anyone can, for their own private study purposes, or for the purposes of research, copy a literary, dramatic, musical or artistic work, provided the extent of the copying, the number of copies made and the circumstances are 'fair' to the copyright owner. The publishers have issued guidelines on what they consider to be fair but beyond these it is for each user to decide. Application may also be made to a library for a copy of a periodical article or part of a book to be provided for private study.

(c) Tutors may make, or ask a librarian to make, a single slide or transparency of text or illustrations from books for lecture purposes.

(d) Tutors may not make multiple copies for distribution to students.

(e) Sound recordings and films may not be copied without permission.

(f) Broadcasts may not be recorded off-air unless they are school, further or adult education programmes, or Open University programmes and provided, where necessary, a licence has been acquired.

Since nurse tutors are concerned with the production of new teaching material, it may be of help to say a little more about the ownership of rights.

It will be clear from paragraph 4 above that, where a tape/slide presentation is made, the first owner of the sound recording and of the slides will be the person or body owning the tape or film, irrespective of who operated the equipment.

So, a tape/slide presentation made by a nurse tutor but using material provided by a medical school or hospital will belong, for copyright purposes, to the school or hospital.

On the other hand, the first owner of the script, as a literary work, will be the author, unless it is produced in the course of employment. This means that the author has the normal employee/employer relationship with the school or hospital and the writing of the script was part of the duties which the author was expected to undertake. This latter point often causes dissension and, before embarking on any production, the ownership or copyright in material provided by staff or students should be clarified by discussion and agreement.

Sometimes patients will be recorded onto tape, and, although their spoken words will not be protected as a literary work at the time, not being in material form, they will be once the recording is made. It is therefore very desirable when recording patient interviews to make sure, preferably by way of written agreement, that the patient understands why the recording is being made and agrees to the use to which it will be put. Legally, permission to use copyright material need not be in writing, but common sense suggests that it should be wherever possible.

Similarly, when photographing a patient, permission should be obtained in writing, not because of any copyright consideration, there being no copyright in a face however original, but because simple courtesy and prudence demand it.

Useful reading

The Council for Educational Technology has produced two books relevant to this subject. *Copyright and Contract* (£1.20) is specifically designed as a course workbook for the use of students and would be of value to tutors producing their own materials. The book contains an algorism with explanatory notes to guide users through the intricacies of copyright clearance. These are available separately in *Copyright Clearance: a practical guide* (£2.25). ■

Further information and advice on copyright matters and details of the licensing schemes mentioned in this article may be obtained by writing to the Rights Development Officer, Council for Educational Technology, 3 Devonshire Street, London W1N 2BA.

Mr Crabb is Rights Development Officer, Council for Educational Technology for the United Kingdom

Media storage

5

SUSIE RODWELL.
Head of Resources Centre, NAVAC

The Resource Centre movement - and any educational development which has generated so much interest and documentation must surely be so designated - has raised many important issues. Not least are the many complex organizational problems involved in the establishment and running of such a Centre. The philosophy underlying the concept of the Resource Centre is studied elsewhere in this issue and in the many books on the topic. It has variously been described as 'a state of mind', an aid to heuristic learning, resource-based learning, mixed ability teaching, interdisciplinary approaches to curriculum development and so forth. Whatever the objectives might be for establishing a collection of resources in a particular teaching and learning environment, the primary concern must be to ensure its optimum exploitation. To do this, it must be adequately organized and housed which requires very careful planning.

It is important to recognize that every resource collection is unique, having its own special clientele with their own individual requirements. Thus the exact nature and extent of the organization and storage problems varies from one situation to another and there is no universal panacea. There will undoubtedly be recurring patterns of use which can be predicted with some certainty, but the ultimate strategy selected by the librarian or resources manager will be his own individual attempt to rationalize the organization of the collection in terms of the specific school requirements, the predicted needs of the users, the physical conditions and the money available. He alone can devise an information retrieval system and shelving system from his analysis of the situation.

There are three closely related factors in the organization of media: classification, cataloguing and storing. The purpose of this article is to study the latter, but decisions on each are inter-dependent and a brief consideration of the former categories as far as they relate to storage problems, might be in order.

Open access and integrated filing

The value of any resource often lies more in its information content and the use to which it can be put than in its actual physical format. Frequently in practice the criteria for use is subject rather than medium and the trend these days is to have, wherever possible, integrated filing with all materials on one topic kept together regardless of the format. The advantage of this arrangement is that it doesn't exclude the possibility of the potential discovery by the user of a whole range of media rather than, say, just a slide on his chosen areas of interest. The problem is that consideration must also be given to the bulk of some media and to the decreasing economic viability of an integrated system where the collection is very large.

Associated with the trend towards integrated storage is the view that browsing is to be encouraged. It is generally agreed that accessibility of the media is the key to the success of a resources collection, particularly in educational establishments where a user with low motivation might easily be put off in his media search if material is hidden away. Just as it would be inconceivable to argue for a closed access book collection, (unless items are very valuable), so also it should be for non-print materials. This is especially so with the eminently browsable materials such as slides; films and other more expensive items are perhaps a different matter and in any case are more usually teaching rather than learning materials. The advantages of open access must, therefore be carefully weighed against the major disadvantage of possible loss either through theft or misfiling. The other main consideration is one relating to the conditions of storage and the protection of the materials. This is a crucial factor in many overseas countries where climatic conditions might affect the media; in such situations the questions of open access, browsing and integrated filing are perhaps secondary problems. We will return to this topic later.

Cataloguing and classification

However well laid out a resource collection, and however much the emphasis might be on encouraging shelf browsing, to ensure the optimum use of the materials requires an efficient and simple information retrieval system. Users have to be made aware of the existence of the material and the information it contains; this necessitates a cataloguing system combined with some form of indexing or classification. There are many guidelines published on the details of the procedures involved. It is important to have regard for storage decisions when preparing the catalogue entries so that if all items are in one catalogue, the format is clearly indicated and the exact location of the item is noted by the accession number or the classification number under which the item is stored.

Classification tends to be an emotive issue; in the case of many non-book materials it is difficult to interpret immediately their content, as it is complex and multi-faceted. One of the most popular subject-based arrangements is the Dewey Classification Scheme which has a relatively simple and easy to use notation and more importantly is quite familiar. Shelf arrangement is simplified by the sequence of numbers, although a decision still has to be reached as to whether separate format sequences or some compromise are used. The disadvantage of the scheme is the limitation it puts on the number of aspects from which a multi-potential item may be found and valuable information may be lost if the user fails to make the conceptual connexion between two subject areas.

Another system which has many advocates is the optical coincidence card index which allows the indexing of each item by any number of separate features and the accessioning of each item by a number. The question then is, whether to attempt to store all the different media by accession number in one sequence, thus losing the valuable browsing facility of identifiable subject coding, or to introduce an intermediate index which helps to rationalize shelving and storage but which adds just one more hurdle for the user. The secret of success is perhaps to ensure that whatever system is selected, it is an unobtrusive tool which doesn't require the user to learn a complex variety of passwords in order to achieve his ultimate aim - the retrieval of material.

Conditions of storage

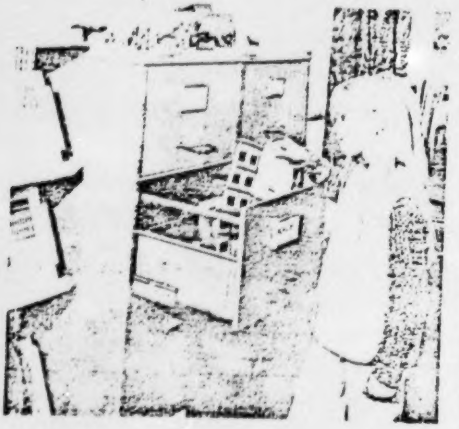
Before studying in detail some of the more general media storage problems, it might be useful to consider briefly some of the effects of tropical conditions on the media and outline possible precautionary measures which can be taken. The problem is the vulnerability of photographic materials, magnetic tape and even print, to excessive heat, sunlight, humidity, sand, dust, insects and fungus. Unfortunately such inclement conditions are most frequently to be found in the poorer countries whose use of media is limited, due to shortage of funds for purchase or production, and where each item is therefore extremely valuable. Similarly, whilst the ideal safeguard might be air-conditioning, it is expensive and hardly a realistic proposition except in the more well-endowed resource centres.

Film is affected by high humidity due to its property of absorbing moisture from the surrounding atmosphere, this can result in fungus growth and damage. Constant variations in temperature and humidity, which can occur when material is taken out of air-conditioned storage for use, can do a great deal of harm with the film becoming brittle and breaking, or sticky and deteriorating. The smaller the environmental change, the better the performance and reliability of the film or tape. If such materials are removed from ideal storage conditions they should be allowed to reach temperature and humidity equilibrium before being used. Film material in active use should be stored at a relative humidity of 40%-60% and below a temperature of 70°F. For long-term storage, colour film should ideally be stored at sub-zero temperatures (though this is usually reserved for valuable archival materials) and at a humidity of 25%-40%, whilst black-and-white film should be below 50°F and 40%-50%. For long-term storage purposes 16mm film in cans should be stored horizontally, as in the vertical position the continual weight on the lower part of the film can cause damage.

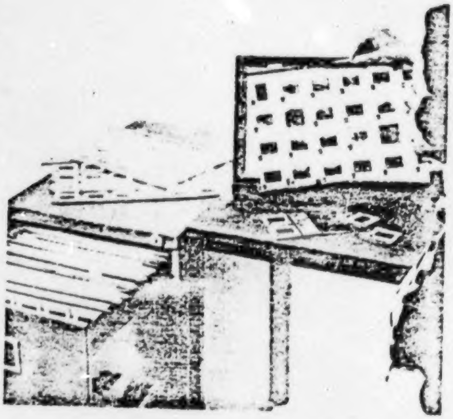
Magnetic tape is similarly affected; heat changes cause expansion and contraction stresses and the lifting of the oxide coating. Tape must also be kept away from magnetic fields. Recommended conditions for tape storage are a temperature of 60° - 80°F with a relative humidity of 40%-60%. Care must be taken to ensure that the plastic moulding boxes in which tape is held are not subjected to heat and thus distorted; the boxes should be stored on edge to prevent tape from shifting against the flanges and resulting in edge damage.

Precautions

There is a number of simple and effective alternatives to the costly air-conditioning, filtering and dehumidification of storage rooms. It is possible to dehumidify a small room by sealing the walls to make it air-tight. Asphalt paint can be used for this. Desiccating agents are more simple and quite effective; materials can be stored in cases containing these agents, sealed with adhesives, or kept in bulk storage cabinets. Attention must be paid to the drying agent to make sure that it is not exhausted; for example calcium chloride must be replaced frequently and silica-gel can be reactivated by heating. It is surprising what a little ingenuity can achieve - dried rice kept in open-weave cloth bags makes an excellent drying agent.



Storage of slides in a filing cabinet
Photo: GLC photo library



The Viewpack slide filing system (Diana Wyllie Ltd.)

Storage systems

Let us now consider some of the different types of audio-visual storage systems. The sheer variety of physical forms and combinations of shapes and sizes of packages in which media are produced poses considerable problems. Media frequently come unnecessarily overpackaged and glamourized, although this is decreasingly the case in these more austere days. A decision may have to be reached as to whether to do away with all these ill-matched boxes and attempt to standardize with some sort of handy library packaging system or in special cabinets. Many boxes of single or mixed media can be simply stored side-by-side on ordinary library shelving without the need for expensive, space-consuming cabinets, racks and drawers or the need to separate mixed media packs into different format sequences. There is a wide range of suitable packaging, including zipped polythene wallets, pamphlet boxes and special media packs. The latter allow for filmstrips, slide sets, tape cassettes, reel-to-reel tapes, film loops, records, overhead projector transparencies and associated notes and booklets to be stored together in a variety of combinations. The packs take varying numbers of items and are compact and very durable. They unfortunately tend to be rather on the expensive side, with a media pack taking up to 90 slides and a cassette costing £1.80. This kind of price can be justified for added protection and convenience, especially when material is issued for loan or used extensively. If simple - and cheap - shelving systems can be built, a case can be made for a greater outlay on such packaging.

The alternative to integrating media on simple shelving is the use of multi-media cabinets, which can often be locked - an extra advantage. However, if the decision has been made for integrated media arrangement, the main disadvantage of many of these cabinets is that, although termed multi-media, they do actually require the separation of media into format sequences. They also raise the question of expansion of the collection; what to do when the cabinets are full. Cabinets tend to be expensive items of furniture and if the size of the collection necessitates several, it may be that a different solution to the media storage problem, such as the total separation of the formats, is desirable. Nevertheless for a small collection of known size, they are well designed space-saving units; and generally allow the user to choose a personal arrangement of the media storage modules. In one such range of cabinets for example, there are seven different storage modules, with divided drawers for cassettes, filmstrips, tapes and film loops, suspended filing rails for slide pockets, transparencies and notes and in addition room for housing audio-visual equipment. Some large steel office cabinets can be adapted for resource storage by adding special racks and suspended filing rails for wallcharts or slides.

Wallcharts

Wallcharts, with their varying sizes and their fragility, are one of the biggest problems when it comes to storage. It is generally difficult to find commercial storage units at prices acceptable to most educational establishments. High postal charges have resulted in a number of wallchart producers supplying their product folded rather than rolled in cartons. If folded, they can be stored in suspended pockets in lateral filing cabinets or in large stiff-backed envelopes. Rolled charts can be stored in cardboard tubes, which offer some protection from dust and damage, in purpose-built racks. Long tubes tend to be costly, but there are various ingenious compromise solutions depending on local circumstances such as the cores from paper kitchen towels. Ideally, charts and maps should be stored flat, either horizontally (although inspection is more difficult and the systems more space-consuming) or, more satisfactorily, vertically in some sort of suspension system. There are many vertical suspension units involving special release levers on rods supported by brackets or fixed in free standing units. But equally effective is the use of bulldog clips and slats of wood suspended between two horizontal supporting rails. A unit such as this is available commercially, but it could be readily prepared by an able carpenter; the support frame measuring 40" high, 42" wide, and as deep as required and as weight will allow. The flat wooden slats should be approximately ¼" thick, 1" deep and 43" wide. One point worth mentioning is that a number of resource centres overcome the problem of the difficulty of browsing through wallcharts by preparing slides of each chart.

Slides

When it comes to the storage of slides, there are many systems from which to choose. Slide sets include any number from 5 to 50 slides and usually have associated teaching notes. Packaging is very varied from boxes to plastic wallets, and for this reason particularly in a non-integrated collection, it is best to take them out of their packs and start again using one mode of storage. What then are the alternatives? The slide box or cabinet with grooved drawers offers a possible solution, but retrieval is difficult and material is not easy to browse through. Costs are reasonable, ranging from 2p to 5p a slide. There are more sophisticated storage units with horizontal or vertical sliding panels and built-in light sources, but only a limited number of slides can be stored and costs are somewhat prohibitive at 7p to 11p per slide. By far the most popular and economic solution for large collections of slides is the use of transparent plastic packs holding 12 to 24 slides, suspended in a conventional filing cabinet. Not only do these allow rapid identification and easy viewing, but they also enable missing slides to be noted immediately. These packs also come with additional plastic pockets for storing accompanying notes, cassettes or tapes; although a better solution for the storage of notes is to use a separate but identically classified sequence in another cabinet drawer. A four drawer filing cabinet can hold up to 10,000 slides by this system with costs as low as 1p per slide. The main disadvantage of the system is that if slides are required for use rather than just for reference, the job of removing them from the packs and replacing them afterwards is rather arduous.

Filmstrips

There is an increasing tendency to cut up full frame filmstrips and mount them as slides. This does have advantages. not only can the filmstrip frames then be interfiled with slides in one of the systems described above, but they also become a more readily viewed item. The most important argument in favour of cutting up strips is that it allows greater flexibility in use; out-of-date or irrelevant frames may be removed,

Film and tape

There is little more to add to what has already been said about the conditions of storage of these media. If the collection of films is large, special film storage racks should be used. These are available from several manufacturers and some office equipment manufacturers produce single film racks which can be incorporated into their steel cabinets. Films, film loops, videotapes and cassettes can be housed in conventional shelving without undue problems.

There are, of course, other items likely to be included in a resource collection such as workcards, but these cause fewer headaches and can be stored in the useful library pamphlet boxes which come in all sizes. Improvisation will often be necessary and it must be remembered that a surprising number of storage problems can be overcome and money saved by a do-it-yourself approach and with careful planning. In most storage decisions the key to success lies in the integration of a particular method into the total design philosophy of the resources centre. Provided that the key organizational components, cataloguing and classification, are co-ordinated with storage factors, most resource material can be accommodated with ease in the collection and, more important, the information retrieved.

Some sources for audio-visual storage systems

Audio Visual Library Services, Powdrake Road,
Grangemouth, Stirlingshire FK3 9UT
(Slidepacks, media packs, slide display cabinets)

Audiovisual Material Supply Co. Ltd., AVM House,
1 Alexandra Road, Farnborough, Hampshire
(Slide cabinets taking from 540 to 5000 slides)

Diana Wyllie Ltd., 3 Park Road, Baker Street,
London, NW1
(Viewpacks for slides, transparencies, cassettes and combinations)

Don Gresswell Ltd., Bridge House, Grange Park,
London N21 1RB
(Avon media file storage boxes, plastic moulded trays for media, library equipment, pamphlet boxes)

E.J. Arnold & Son Ltd., Butterly Street, Leeds LS10
1 AX (Storage boxes)

F.C. Brown (Steel Equipment) Ltd., Queens Road,
Bisley, Surrey
(Steel filing cabinets for filmstrips, conventional filing cabinets)

Librex Educational Co., Colwick Crossings,
Nottingham NG2 4BG
(Library furniture, record and cassette storage systems)

Photo-Science Ltd., Charfleets Road, Canvey Island,
Essex SS8 0HP
(Slide storage systems and cabinets)

Pictorial Charts Educational Trust, 27 Kirchen Road,
London W13
(Simple chart storage system)

Terrapin Reska Ltd., Bond Street, Bletchley, MK2
2BQ
(Multi-media storage cabinet)

Transart Ltd., East Chadley Lane, Godmanchester,
Huntingdon PE18 8AU
(Flipitran books for transparency storage, slide cabinets and boxes)

6

Choosing and using tape-slide packages

Ian Townsend

THE DECISION to use a tape-slide set is usually determined by knowing that one is available on a certain topic, and wanting to slot it into your teaching curriculum. But how about reversing this process? How about having a look at *what* your curriculum covers, and *then* deciding which topics could benefit from a tape-slide approach?

If you do this, it's a help to know that although the tape-slide set can be used to introduce variety into a lecture, its great advantage is in presenting complex information through simple visuals (slides) and live description (on tape) in a sequence which can provide a very powerful learning tool.

Knowing this, you may like to try to identify those subjects which are traditionally difficult ones. Even better, why not ask your students? Sometimes their view of what is difficult may well surprise you.

Once you've done this, what do you do? There are few easy answers. You could look through all the commercial audio-visual catalogues that your school holds. In this case, you'll likely look for those manufacturers and authors who have a reliable reputation, and you'll want to note the date of publication, and the content description. You may well find that you come across useful reviews of your item in the nursing journals or magazines devoted to audio-visual aids.

If your school doesn't hold many catalogues the NHS Learning Resources Unit[*] can supply you with a list of manufacturers' addresses so that you can write off for their catalogues yourself. Or you can send for *The Yearbook of the National Committee for Audio-visual Aids in Education*[†] which contains a useful store of addresses.

The only other alternative I know of is to use an information retrieval service to identify suitable tape-slide material for you. I know of three. First, the information officer of the NHS Learning Resources Unit will compile a resource list for you on any subject under the sun (please send an sae). The information will be taken mainly from national sources.

Second, if you are interested in international sources you can try MAVIS (Medical Audio-Visual Information Service) at Ninewells Hospital, Dundee (Townsend, 1977).

Third, if you come under Wessex region you could write to the audio-visual librarian at the Wessex Regional Library Service[‡].

Once you've decided what you want, you'll have to go about getting it.

Getting what you want

If it's a hireable item, it may be worth exploring the possibility of trying to get it free of charge to assess its suitability for future use—if you intend to make substantial use of a tape-slide package, then you may be able to come to an arrangement with the organisation supplying it.

If, on the other hand, it is available for sale, you should always preview (paying a hire charge, if necessary) before deciding to buy. There must be many pounds-worth of tapes-slides sitting around not being used because they 'weren't just what we wanted'. You should also be prepared to pay at least the postal charges in the case of free loan items, and it's as well to bear the high cost of postage in mind when you're making your calculations.

Choosing a tape-slide set

How do you decide if a certain set is useful? There are four broad areas to think about: general appearance, quality of the slides and of the tape, and the suitability of the content.

General appearance. There's quite a lot to think about here. For a start, how is the tape-slide packaged? Will the container be physically suitable for shelf-storage (in terms of size, prominent labelling, durability and accessibility)? There's no point in storing your sets in their original containers if they are going to fall to bits in a few weeks; conversely, why throw away good money on expensive storage systems if the original containers are adequate?

How easy is it to get the contents out of their packaging? (Some tapes-slides seem to be marketed in vacuum-sealed safes.) Do the slides fall out of their containers, or do you have to sacrifice your fingernails to get them out? Are the tapes and slides labelled and numbered clearly, with projection ('this way up') dots on the slides?

Does the set come with any supporting literature? Is there a leaflet describing the contents, giving hints on use, or stating the objectives? Are student workbooks supplied? Or is the set you have chosen yet another example of someone's 'let's throw a few unrelated slides together and say a bit about each of them in turn' idea?

---

[*] *NHS Learning Resources Unit, 55 Broomgrove Road, Sheffield.*

[†] The Yearbook of The National Committee for Audio-visual Aids in Education (1977) *is available from: 24 Belsize Road, London NW6 4BY, price 80p + p & p.*

[‡] *Wessex Regional Library Service, South Academic Block, Southampton General Hospital, Tremona Road, Southampton SO9 4YY.*

How long does the tape-slide set last? Surely not another mammoth 100-slide, one-hour sitting? Probably 15–20 minutes is the maximum time for which you ought to use a tape-slide programme. How much are you being asked to pay? Of course, how much you pay will depend on how important the subject is to you, but beware of spending money unwisely.

Slide quality. The effectiveness of a tape-slide set relies to a very large extent on the quality of its slides. Some sets are very, very good. Most are mediocre. So what should you look for? Actual photographs (as opposed to slides of charts, diagrams, and written material) should be sharply in focus, correctly lit and should show exactly what the subject demands, photographed from the right angle on the right film. There is a considerable body of research available on how to shoot photographs for maximum learning effectiveness—it's a pity most of it has been ignored. Colour should not be used garishly, and should certainly not vary widely from slide to slide (some sets are almost psychedelic in the intensity of the colours they use).

Charts, drawings and word slides should be bold, uncluttered with irrelevant information, and should not try to present too much at once. If reading the smallest detail from the back of the classroom gives you a headache, the slide's no good.

Does your 'chosen' tape-slide set have question- or summary-slides to provoke student reaction or participation?

In your opinion, are there too many, too few, or just enough slides? If you're really lucky, your set may actually have numbers printed on the projected slide—a great boon if you've lost your place while projecting.

Sound quality. Is the sound quality adequate, especially when you turn the volume up? Or is the recording hissy, crackly, one which suddenly fades or gets louder? Is the sound level under-recorded (so that it's very difficult to hear), over-recorded (the speech becomes distorted) or audible, but otherwise badly recorded? On some commercial tapes I have heard clicks, commentators coughing, even script pages being turned.

If the recording *is* a satisfactory one, how about the pace? Does it gallop along, giving the impression that the talker is rushing to catch a train; go very slowly, eliciting yawns from your class; or is it lively, encouraging, with the talker's inflexions and tone of voice adding interest to the subject? How relevant is what is being said to what actually appears on the screen?

Are the technical terms explained in simple language, or are they just introduced with no explanation at all? Does the tape allow for student summaries (or even dictate them); does it instruct the user to turn off in order to carry out assignments?

Finally, what type of slide-change cue is used? Is it suitable, or does it soon become irritating? Beware of buying tape-slides which are synchronised for automatic equipment which you haven't got—the slide-change cue may not work on your equipment, and may not be audible for you to hear when to change the slide manually.

Content suitability. Technical matters apart, the tape-slide set must obviously be suitable for your students. Is the content accurate (if it isn't, is it acceptable at all)? Is it up-to-date? You must be the expert in this case—but don't forget that often a commercial set can be 'saved' by updating it quite easily with your own slides.

In many schools, potential tape-slide buys are reviewed by an audio-visual committee. This is a very good idea. If you already have one of these, has it got student representatives on it? After all, they are the real customers.

Using a set

If you're going to use a particular tape-slide set to support a lesson, make sure it does exactly that—support, not take over. There is sometimes a danger when you're using this medium to switch on the machinery and switch off your own critical facilities. (I've even heard apocryphal tales of teachers who will switch on, and then physically absent themselves from the classroom.)

A tape-slide programme should be integrated into a lesson so that it becomes an important part, but not the whole. Do you need to use the entire set? On many occasions you may find that you need to use only a part of a set to put across your message. You may want to split the viewing of a tape-slide programme into a number of separate parts, interspersing with your own additional, and perhaps anecdotal, information as well as providing opportunities for student questions, student note taking.

You may decide that a particular tape-slide could present very useful not-so-essential information, and you may like to recommend it for student self-study.

If the tape-slide set is one you own and use frequently, the manufacturers may allow you to make your own 'emergency' copy (if you have the facilities to do this), for use while you order a replacement copy from them. You might think it worthwhile to order duplicates of the very popular sets. This does become a real problem if students are allowed access to them for self-study.

Pre-viewing is, of course, essential. It's not just a case of getting a package off the shelf or through the post and sticking it on the projector. Efficient use needs careful pre-viewing, if only to check that all the slides are in the magazine correctly, and that the tape is the right one. If the set is one you own, and you're storing the slides in a carousel magazine, a useful tip is to make sure the slides are in the correct order and then tape the lid on the drum so that they can't be 'got at'.

Then there are the physical preparations. Is the room free you want to use? Has it got adequate blackout? Adequate ventilation? Is the equipment and a screen (working) in it already? Is the seating arranged so that your students will be sitting comfortably?

I like to project a slide onto the screen before anyone comes into the room, focus it up to the right size—not too large or too small for my audience—and then walk around making sure that I can see the details from all the seats (and rearranging things when I can't).

If I'm using a remote-control handset, I like to make sure that it's working properly, and to remind myself which is the Forward button. I then like to tape it to a working surface for safety. I also like to tape the power or loudspeaker leads to the floor with strips of masking tape so that I don't trip over them.

Then I like to play the tape and move around the room, adjusting the volume so that I can hear it, without distortion, everywhere. I find that if I have it just a little louder than necessary, the volume is just right when the room has students in it.

I try not to forget to zero the tape and slides, and I find that if I mark the volume control at the level I've chosen, I can turn the volume right down, so that when I do turn it on in class, I can bring the sound level smoothly up and avoid deafening the students.

Now, the students. Check that they are sitting comfortably. Tell them if you expect them to take notes during the course of the programme, after it, or if there will be a prepared handout for them. Tell them what they are going to see, why you've chosen that particular tape-slide set and if there are especially important points to note. For goodness sake don't leave them guessing.

REFERENCE

TOWNSEND, IAN (1977). *Nursing Mirror*, 144, 5, 64–65.

Ian Townsend is educational media adviser, NHS Learning Resources Unit, Sheffield